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NATIONAL INSTITUTE FOR  
OCCUPATIONAL HEALTH

Division of the National Health Laboratory Service



OCCUZONE

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## MESSAGE FROM THE CHIEF EDITOR

Welcome to the inaugural issue of NIOH OccuZone, an electronic newsletter dedicated to keeping you up to date with the latest developments of the National Institute for Occupational Health (NIOH). It is with great delight that we introduce this platform for disseminating and sharing information about the Institute's activities, events, accomplishments (research, service delivery and teaching & training), creating awareness and profiling the Institute's emerging researchers and their work.

The NIOH participates in a large number of challenging Occupational Health and Safety OHS engagements in both the public and the private sectors, ranging from cutting edge research at a national and global level, to supporting innovative programmes to reduce workplace diseases and injuries. To achieve this, the diverse and multidisciplinary teams of NIOH work alongside a large number of world-of-work role-players locally, nationally and internationally. We are enriched by these experiences and remain committed to continue to excel in our work towards greater prevention of diseases and injuries at workplaces. NIOH has made significant efforts to integrate the local, regional and global changes that impact OHS in our teaching and training initiatives. This includes aspects such as, changes in the arrangement of work, technology, globalisation and climate change, all of which are drivers that have a profound impact on OHS. This changing world of work with more technological innovations provides golden opportunities for sustainable preventive practices in OHS, as well as the greater preservation of worker and community health. The Institute profiles ways in which the heavy burden of OHS diseases on health services, can be effectively reduced through better compliance of workplaces with OHS legislation, but above all, by working collaboratively for a mind-set change towards greater prevention of occupational diseases and injuries.

The first half of the year has been full of activity and in this first issue of OccuZone we are pleased to showcase the Institute's achievements by sharing the following: some of the stimulating research on kidney function of sugarcane workers; profile one of our researchers and showcase our scientific publications for the first quarter. We have also selected three specialised services and new advances that the Institute is proud of, surveillance in Occupational Health and highlighting some of our teaching and training events.

I hope you will enjoy the rest of the read and many more issues to come.

**Angel Mzoneli**

Chief Editor

# Research

## Message from the Research Committee Chair

From the trenches of the mines to the new world of work, the research agenda of the NIOH has transformed overtime, but the primary goal of hazard prevention and health promotion of workers remain unchanged. The toxicological effects of novel particles and fibres has been at the forefront of our research and is reflected in this issue. So is our steadfast commitment to highlighting environmental health issues as a consequence of workplace exposure. A recent study fortunately showed no association between pulmonary TB and gold mine tailing dust in a nearby community.

The dawn of the 4th industrial revolution will bring new workplace exposures and emerging occupational diseases. This will require new thinking and new partnerships to proactively address these challenges. With scarce resources, universal health coverage and a healthy workforce to drive the digital economy will require extraordinary commitment to building capacity and accelerating efforts to preventing workplace exposures. A network of geographical environmental and occupational hubs (GEOhubs) are envisaged, through research collaborations both nationally and internationally, thus empowering intriguing minds to identify new opportunities focused on outcomes that will have the greatest impact on the largest number of workers. Stronger public-private partnerships in key sectors will also be needed for innovative and coordinated solutions to address our current and future occupational health risks. Therefore, we welcome robust discussions on the possibilities and to reinvigorate occupational health research.

**Dr. Tanusha Singh**





## RESEARCH FOCUS

Research is a core function of the NIOH and includes multi-disciplinary and multi-institutional collaborative projects in both the formal and informal economies. Whilst the Institute continues its research in the traditional focus area of mining, it's constantly investigating new and exciting research ideas in many other sectors. In this edition, our research focus is on kidney function of sugarcane workers.

### **Kidney function changes in sugarcane workers in the south coast, KwaZulu Natal, South Africa**

Research team: M Magombo <sup>a,b</sup>, L Barregard <sup>c</sup>, S Kgalamono <sup>a,b</sup>, F Made <sup>a,b</sup>, T Snyman, J George <sup>b</sup>, S Naicker <sup>b</sup>, E Dorkin <sup>d</sup>, C Wesseling <sup>e</sup>, D Rees <sup>a,b</sup>

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Repetitive dehydration due to strenuous work in hot environments is thought to be the cause of epidemic chronic kidney disease of unknown cause (CKDU), occurs among sugarcane workers. This is notably the case among cane cutters doing heavy manual work in hot tropical environments in Mesoamerica.

A Nicaraguan study was replicated on a sugar plantation in South Africa about 3 400 kms from the equator and cooler than previous study locations to examine whether less extreme ambient conditions resulted in reduced kidney stress.

In this study 37 cane cutters and 36 referents of similar socio-economic status but doing less strenuous work on the same plantation had their blood and urine samples assessed for biomarkers of kidney function. The aim was to determine changes in kidney function and hydration across ten weeks of cane cutting. The cutters were examined at the start of cutting season and well as Day 10 and Week 10 of the cutting season, pre- and post-shift. The reference group was examined only on Day 1 and Week 10. The chronic kidney disease epidemiology (CKD-EPI) equation was used to calculate the estimated glomerular filtration rate (eGFR) based on serum creatinine.

Among cane cutters, the mean pre-shift serum creatinine increased by 7% and 14% on Day 1 and week 10 respectively; and the eGFR decreased across shift by 3% and 5%, respectively. These changes were consistent with kidney stress over the shift. Whereas no change was observed across the season in eGFR. Pre-shift Cystatin C, a

biomarker of kidney function increased by 15%, whereas, the marker of kidney damage, NGAL (neutrophil gelatinase-associated lipocalin) decreased by 3.6%. Serum creatinine decreased by 1% and eGFR increased by 1.4% across the 10 weeks of cutting.

This study found evidence of effects on kidney function after 10 weeks of cane cutting, but milder than those reported in hotter and lower altitude settings. The findings are of concern as it is postulated that minor effects when repeated frequently over years may result in significant renal injury.



## PUBLICATIONS

### Title: Particle Toxicology and health- where are we?

**Author(s):** Riediker M, Zink D, Kreyling W, Oberdörster G, Elder A, Graham U, Lynch I, Duschl A, Ichihara G, Ichihara S, Kobayashi T, Hisanaga N, Umezawa M, Cheng T-J, Handy R, **Gulumian M**, Tinkle S and Cassee F

**Journal:** Particle and Fibre Toxicology 2019, 16: 19

**Background:** Particles and fibres affect human health as a function of their properties such as chemical composition, size and shape but also depending on complex interactions in an organism that occur at various levels between particle uptake and target organ responses.

While particulate pollution is one of the leading contributors to the global burden of disease, particles are also increasingly used for medical purposes. Over the past decades we have gained considerable experience in how particle properties and particle-bio interactions are linked to human health. This insight is useful for improved risk management in the case of unwanted health effects but also for developing novel medical therapies. The concepts that help us better understand particles' and fibres' risks include the fate of particles in the body; exposure, dosimetry and dose-metrics and the 5 Bs: bioavailability, biopersistence, bioprocessing, biomodification and bioclearance of (nano) particles. This includes the role of the biomolecule corona, immunity and systemic responses, non-specific effects in the lungs and other body parts, particle effects and the developing body, and the link from the natural environment to human health. The importance of these different concepts for the human health risk depends not only on the properties of the particles and fibres, but is also strongly influenced by production, use and disposal scenarios.

**Conclusion:** Lessons learned from the past can prove to be helpful for the future of the field, notably for understanding novel particles and fibres and for defining appropriate risk management and governance approaches.



### Title: Environmental silica dust exposure and pulmonary tuberculosis in Johannesburg, South Africa

**Author(s):** Kootbodien T, Iyaloo S, Wilson K, Naicker N, Kgalamono S, Haman T, Mathee A, Rees D

**Journal:** International Journal of Environmental Research and Public Health 2019, 16, 1867

**Background:** Occupational crystalline silica dust exposure is associated with an elevated risk of pulmonary tuberculosis (PTB). However, there is less evidence for an association with environmental silica dust exposure.

**Methods:** A cross-sectional study of 310 participants was conducted in an exposed community living within 2 km of gold mine tailings and an unexposed population residing more than 10 km from the nearest gold mine tailing. Chest radiographs (n = 178) were read for PTB, past or current, by three readers.

**Results:** Past or current PTB was radiologically identified in 14.4% (95%CI 9.2–21.8) in the exposed and 7.5% (95%CI 2.8–18.7) in the unexposed groups. Multivariate logistic regression models suggested that PTB prevalence was independently associated with exposure to second-hand smoke (OR = 8.13, 95%CI 1.16–57.22), a lower body mass index (OR = 0.88, 95%CI 0.80–0.98), previous diagnosis and treatment of PTB (OR = 8.98, 95%CI 1.98–40.34), and exposure to dust in the workplace from sand, construction, and/or mining industries (OR = 10.2, 95%CI 2.10–50.11).

**Conclusion:** We found no association between PTB and environmental exposure to gold mine tailing dust. However, workplace silica dust exposure is a significant risk factor for PTB in South Africa, and PTB patients of working age should be screened for silica exposure.



**Title:** Chirality, a neglected physico-chemical property of nanomaterial?  
**A mini-review on the occurrence and importance chirality on their toxicity**

**Author(s):** Utembe W

**Journal:** Toxicology Letters 2019, 311: 58-65

**Background:** Toxicity assessments are required for nanomaterials which are being used in many fields such as medicines, electronics, pesticides, clothes and construction materials. One factor that usually affects toxicity of chemicals is chirality. This paper reviews the existence of chirality in nanoparticles and critically analyses the implications of chirality on toxicological risk assessment of nanoparticles. Chirality and optical activity arise from lack of symmetry, where an object is non-superimposable on its mirror image. Optical isomers or enantiomers have similar physico-chemical properties but only differ in their optical activity and their interaction with biological systems. Chirality is not limited to organic molecules, but also exists in inorganic compounds and crystals. Studies have also shown that chirality can be bestowed onto nanoparticles by adsorption of chiral molecules, and by careful design of the crystal to expose chiral kinked and stepped surface structures. Just as chirality has been shown to affect the biological activities of conventional chemicals, nanoparticles functionalised with different enantiomers have been shown to exhibit enantioselectivity and different toxicities. However, at the moment more studies on the ligands and the conditions under which chirality occurs in NPs, as well as on the effects of NP chirality on protein adsorption kinetics and thermodynamics. Nevertheless, this cursory analysis has shown the importance of chirality on biological activity of nanoparticles. In cases where there is a potential for the existence of chirality in nanomaterials (either intrinsic or extrinsic), there may be need for adequate consideration of the effects of chirality.

**Keywords:** Chirality; Nanoparticles; Nanotoxicology; Surface chemistry; Biocompatibility; Enantiomers



**Title:** Usefulness of occupation and industry information in mortality data in South Africa from 2006 to 2015

**Author(s):** KS Wilson, N. Naicker, T. Kootbodien, V. Ntlebi, F. Made, N. Tlotleng

**Source:** BMC Public Health (2019) 19: 866

**Background:** There is no population based occupational health surveillance system in South Africa, thus mortality data may be a cost effective means of monitoring trends and possible associations with occupation. The aim of this study was to use deaths due to pneumoconiosis (a known occupational disease) to determine if the South African mortality data are a valid data source for occupational health surveillance in South Africa.

**Methods:** Proportions of complete occupation and industry information for the years 2006–2015 were calculated for working age and retired adults. Deaths due to pneumoconiosis were identified in the data set and mortality odds ratios calculated for specific occupations and industry in reference to those who reported being unemployed using logistic regression.

**Results:** Only 16.1% of death notifications provided a usual occupation despite 43.1% of the population being employed in the year. The MORs for occupation provided significant increased odds of pneumoconiosis for miners (9.04), those involved in manufacturing (4.77), engineers and machinery mechanics (6.85). Along with these jobs the Mining (9.8), Manufacture (2.2) and Maintenance and repair industries (6.0) have significantly increased odds of pneumoconiosis deaths. The data can be said to provide a useful source of occupational disease information for surveillance where active surveillance systems do not exist.

**Conclusion:** The findings indicate valid associations were found between occupational disease and expected jobs and industry. The most useful data are from 2013 onwards due to more detailed coding of occupation and industry.

**Keywords:** Mortality, Pneumoconiosis, Mining, Manufacturing



## IN THE SPOTLIGHT

### Kerry Wilson, Epidemiologist

#### Why did you choose this career?

I enjoy research and I wanted to give back.

I realized after completing my PhD in the laboratory that I prefer working with a bigger picture and with data rather than samples. Epidemiology allows me to engage with all of these. I like trying to answer questions and identifying patterns in data. What training and qualifications did you undergo and where? My initial degrees were in Biochemistry and Toxicology at the University of the Witwatersrand and the University of Port Elizabeth. My PhD was in Toxicology and Epidemiology at the University of the Witwatersrand in the Medical Faculty.



#### What are the most enjoyable aspects of doing research?

Identifying research gaps and working out how to find the answers to questions regarding the health of workers. Doing the background reading to become familiar with the topic of the study and learning new things. Finally finishing a study and realizing you have found new evidence or corroborated a previous study.

#### What are your research highlights to date?

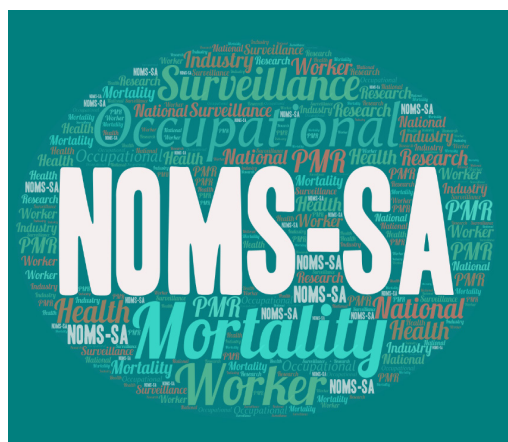
My PhD evaluated biomarkers for silica exposure and we were able to identify two possible candidates. An occupational reproductive health study demonstrated that time to pregnancy is a viable measure in South Africa and that domestic workers are at risk. Working with OHASIS an occupational health and safety information system has given me hope that we will establish an occupational health surveillance system in South Africa. Most recently, I have worked on occupational health in the informal economy and with mortality data and occupations to establish an occupational mortality surveillance system.

#### What are your career goals?

My first goal is to continue to conduct research studies to inform recommendations that make a measurable difference in people's lives. While my second goal is to improve research translation and dissemination such that government and company policy are updated to best practice and to provide workers with more information to protect their own health and demand safer working conditions.



# Surveillance



One function of the NIOH is to support and initiate surveillance programmes in occupational health. Innovative methods are needed in South Africa because of the paucity of routinely collected and analysed data. A new method using mortality data has been initiated by the Epidemiology and Surveillance Section at the NIOH and this part of the Newsletter briefly describes the methodology and presents some preliminary data. Comments are welcomed.

## A National Surveillance System For Occupational Mortality: concept, initial findings and future prospects

Surveillance is crucial for the identification and prevention of occupation-related morbidity and mortality. In the absence of a national surveillance programme, vital registration data from Statistics South Africa were used to establish the National Occupational Mortality Surveillance database of South Africa (NOMS-SA). The objective was to determine the increase in mortality from specific diseases and injuries within occupation groups. Underlying cause of death data for 2016 were obtained, based on death certificate information reported to Statistics South Africa from the Department of Home Affairs. We used the South African National Burden of Disease Study (NBD) list of highest ranked causes of deaths to assess mortality risk among occupations. Proportionate mortality ratios (PMRs) were calculated to approximate the risk associated in each occupation. A PMR of more than 100 indicates that the proportion of deaths from a particular cause in the specified occupation is higher than the general population. In 2016, there were 468,573 reported deaths of persons  $\geq 15$  years and only 59,707 (12.7%) individuals had a specified occupation. Elevated risk of HIV/AIDS mortality was noted in service workers and armed forces personnel (PMR=132), elementary occupations (PMR=132) and plant and machine operators (PMR=120). Tuberculosis mortality was significantly higher in elementary occupations (PMR=121), plant and machine operators (PMR=118) and agricultural workers (PMR=113). Diabetes mortality was high in professionals

(PMR=121) while elevated risk of ischemic heart disease mortality was noted in managers (PMR=340), professionals (PMR=244), technicians (PMR=243), clerks (PMR=220), agricultural (PMR=210) and craft workers (PMR=160). Elevated risk of interpersonal violence was highest among elementary workers (PMR=153), followed by service workers and armed forces personnel (PMR=143), agricultural workers (PMR=137) and plant and machine operators (PMR=110). Continuous surveillance of mortality by industry and/or occupation is a low-cost method that can provide a clearer understanding of the burden and distribution of work-related illness and can identify trends and emerging patterns in workplaces in order to support recommendations for targeted prevention programmes and policy. Interested investigators will be able to access the NOMS-SA database at <http://nioh.ac.za>

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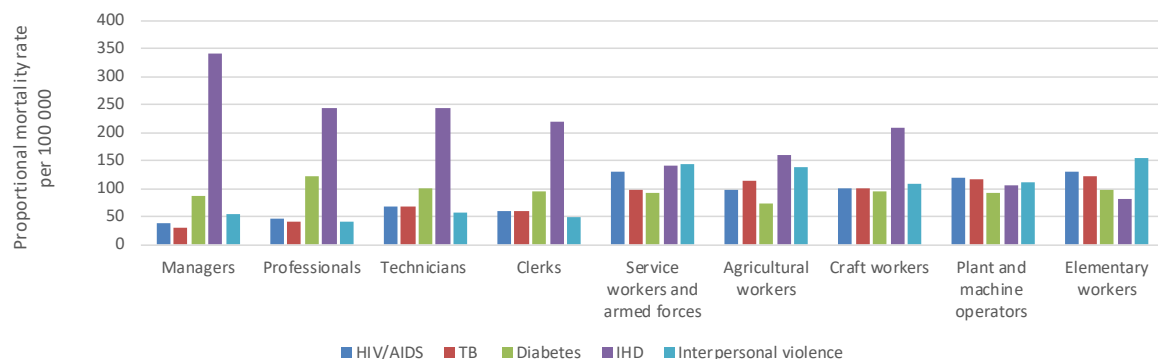
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Proportional mortality ratio by occupation



	HIV/AIDS	TB	Diabetes	IHD	Interpersonal violence
<b>Managers</b>	39.60	31.16	81.88	340.55	55.32
<b>Professionals</b>	47.01	41.49	121.24	243.35	42.35
<b>Technicians</b>	69.37	69.69	102.14	244.89	58.85
<b>Elementary workers</b>	131.75	121.27	98.52	82.05	153.74
<b>Clerks</b>	59.903	59.06	95.70	220.37	49.06
<b>Service workers and armed forces</b>	131.75	98.37	92.36	140.45	143.99
<b>Agricultural workers</b>	99.82	113.47	73.55	160.94	137.39
<b>Craft workers</b>	99.82	100.04	94.91	210.09	108.83
<b>Plant and machine operators</b>	120.18	118.43	91.98	104.99	110.95

# Specialised Services

## RESPIRATOR FIT TESTING

### A Specialised Occupational Hygiene Service

Workers often use respirators or masks to protect themselves from breathing in hazardous substances. Unfortunately, these respirators are regularly the only “control” method used in many workplaces and the amount of protection provided can be affected by how well the respirators fit. Currently employees are issued with respirators, which are correct for the type of hazardous substance but not always matched for their faces. It is important to conduct respirator fit testing in order to match people according to their facial characteristics with the correct size and style of a respirator. Different shapes and sizes of respirators are available to help with this.

Respirator fit testing is one important element of a respiratory protection programme and can be either qualitative or quantitative. A quantitative fit test is known to be a best method to assess whether a specific type, model and the size of a respirator adequately fits a particular individual. Respirator fit testing is not explicitly mentioned in relevant South African legislation but is referred to in the phrase such as “the employer shall ensure the relevant equipment is capable of preventing /controlling exposure”. Many employers are reluctant to do fit testing, but they should aim for best practice where possible. The misconception of some of the employers is that conducting respirator fit testing may initiate possible litigation by users if the outcome shows poor fit on currently supplied respirators. But not conducting fit testing could also leave them vulnerable to litigation. Secondly, the outcome of any current respirator fit testing results cannot be used to prove poor fit in the past since people’s facial characteristics change overtime hence the requirement of retesting regularly. In addition, as more research is conducted more respirator styles and sizes which afford better fit will become available.

Recommendations on the use of respirators should include respirator fit testing. This will remove the guesswork of issuing correct sizes or styles of respirators. Poor protection obtained from improperly selected respirators can put the workers at potential risk of disease such as silicosis, asbestosis and tuberculosis.

The NIOH Occupational Hygiene Section provides this specialized service in accordance with international standards. The section also provides training on conducting respirator fit testing to industry staff as part of capacity building ensuring continuity of this service in-house if a company wishes.

For more information regarding this service contact  
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## ADVANCES IN ANALYTICAL SERVICES

Benzene, toluene, ethyl benzene and xylene (BTEX) are the most common solvents used in occupational settings throughout the various industries such as mining, petro-chemical, glue, rubber, plastic, pathology services etc. Furthermore, some disinfectants and antiseptics are known to contain these solvents. These solvents are harmful whilst benzene and ethylbenzene are known carcinogens. The routes of exposure are through ingestion, inhalation and dermal absorption.

Most conventional methods for analysis of these solvents and their metabolites are generally very expensive, labour intensive and time consuming. This results in extended and long turn-around-times (TAT) of up to 20 working days.

In our quest to continually improve on our total quality management system and reduce costs with benefits to both the National Institute for Occupational Health (NIOH) and our clients, Analytical Services have introduced new methods for the detection of these harmful solvents. These methods have recently (April 2019) been accredited by the South African National Accreditation System (SANAS) according to ISO 15189:2012.

The BTEX kit methods have been deemed fit for purpose and routine use. These methods simultaneously detect the metabolites of these BTEX solvents resulting in a significant reduction of TATs and cost. Analytical Services can now offer a TAT of 5-7 working days on these analyses. The innovative power of these kit methods lie in the ability to do multi-compound analyses with high sensitivity and selectivity.

As Analytical Services, we are always striving to improve our existing practices by introducing innovations in order to provide better and reliable testing services in support of health and safety in the workplace.

For more information regarding this service contact  
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## WORK DISABILITY MANAGEMENT: A NEW INITIATIVE

There is recognition that work is generally good for the health of workers. However, the preventive strategies employed in the workplace may not be effective resulting in workers sustaining injuries and contracting diseases from their work. The interaction between the affected workers and personal and environmental factors may lead to disability in the form of impairments, activity limitations and participation restrictions. When these workers are unable to stay at work or return to work because of an injury or disease, the term “Work Disability” is used. The term encompasses: sickness absence, presenteeism (being at work but not being productive) and return to work. Thus, work disability management is an active process used to keep the worker at the workplace by minimizing the impact of an impairment on a worker’s capacity to participate at work.

The Occupational Medicine Section realized a gap in “Work Disability Management” hence the establishment of the “Work Disability Management Unit”. The 2006, United Nations Convention on the Rights of Persons with Disabilities which was ratified by South Africa and the draft Compensation of Occupational Injuries and Diseases Amendment Bill of 2018, which incorporates rehabilitation and return to work, provide credence to the Unit. The Unit will provide services to the South African workplaces, conduct research and perform teaching and training of occupational health professionals and workers.

Currently, the Unit is working on two projects. The first project is on cross-cultural adaptation of a tool that will be used to measure the perceived difficulties in meeting work demands among workers given their physical health or emotional problems. The second project is on sickness absence in the National Health Laboratory Service (NHLS) workers from 2013-2018”.

It is hoped that the work of the Unit will make a difference to both South African employers and workers through preservation of institutional memory and workers’ quality of life, respectively.

For more information regarding this service contact  
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# Teaching & Training

## Capacity building initiatives & technology transfer

The training offered by the NIOH strives to promote development of the work environment, work communities and organisations, to enhance management of changes, and to further occupational health and expertise in these issues at workplaces.

Also included in the training offered by the Institute are continuing education and supplementary courses aiming to maintain and develop professional skills. The courses are meant for professionals and in occupational health and safety, for labour protection personnel, and for people working in personnel administration and production.

The training given is based on the NIOH's research and development activities. Our training activities are guided by expertise in the spheres of health, the work environment, and work communities and familiarity with the practical operational models combining them. Impact is a key element in all of our activities.

## TRAINING CONDUCTED

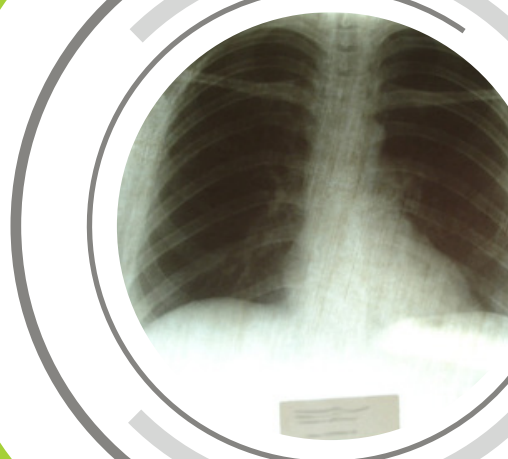
### Chest x ray and CT imaging in Occupational and environmental respiratory diseases

The NIOH conducted training on the interpretation of high resolution computed tomography (HRCT) scans on 11-13 April 2019. This three day training was conducted by Dr Kurt Hering, a world-renowned expert on imaging and occupational lung diseases, who has made substantial contributions to the development of the International Labour Organization's (ILO) Classification of Radiographs of Pneumoconioses and the new system for classifying CT images. The training course was coordinated by Dr Odette Volmink from the Occupational Medicine Section at NIOH, after a gap was identified in the interpretation of HRCT scans in South Africa.

This is largely due to workplace exposures, which have become more complex resulting in a broader range of lung conditions attributed to work. Many are better visualized on CT scans than X-ray. Co-morbidities are also typically better identified using CT, as are abnormalities such as adenopathy.

This is largely due to workplace exposures, which have become more complex resulting in a broader range of lung conditions attributed to work. Many are better visualized on CT scans than X-ray. Co-morbidities are also typically better identified using CT, as are abnormalities such as adenopathy.

The course attracted Occupational Medicine Doctors and Radiologists from both private and public entities including academia in South Africa, Zimbabwe and Namibia and presented an opportunity to discuss collaboration between experts in addressing gaps in occupational health skills and technology transfer.



## NIOH MBOD Workshop - “Kitso ke Tshiamiso”

On Friday 17 May 2019, in a collaborative initiative between the National Department of Health's Occupational Health cluster under the auspices of the Medical Bureau for Occupational Diseases (MBOD) and the Pathology Section of the NIOH, a one-day workshop on post-mortem examinations was held. The theme of the workshop was “Kitso ke Tshiamiso”, translated as “Knowledge applied, justice served”, in cognisance of the growing awareness of the health of mineworkers, particularly that of former mineworkers.

The Occupational Diseases in Mines and Works Act (ODMWA), Chapter III, sections 34, 35 and 45 requires that post-mortem examinations of the cardio-respiratory organs are conducted on mineworkers who were exposed to risk work. The standards applied in the certification of ODMWA compensable diseases at post-mortem examination are described in the “Code of Practice on Medical Examinations and Standards applicable in the Certification of Compensable Diseases” of 1999. This workshop was an integral component to the current review process of this action of submitted cases of occupational lung diseases by certification committee members, appointed under ODMWA section 39(2)(a).

For more information on this training or to discuss possible future training dates contact the Pathology Section: 011 712 6519 or send an email to: [info@nioh.ac.za](mailto:info@nioh.ac.za)





## Occupational Allergies & Asthma Workshop

The NIOH Immunology & Microbiology Section's Occupational Allergy team in collaboration with Occupational Medicine Section, conducted a one-day workshop on Occupational Allergies & Asthma at Cecilia Makiwane Hospital in Mdantsane Township, East London. The training covered an overview of NIOH followed by technical presentations including Occupational Asthma (OA) and Compensation Circulars for OA, Diagnostic tests for IgE mediated allergy, Occupational Skin Diseases (OSD) and tests for OA & OSD. The training was well received by the delegates and a request was made for the training to be done over a weekend for the busy doctors.

*To enquire about having this training conducted at your facility or workplace contact the Immunology & Microbiology team: 011 712 6424/6475 or send an email request to: [info@nioh.ac.za](mailto:info@nioh.ac.za)*



## LECTURES CONDUCTED

### Occupational Health Nurses Training

Occupational health nurses (OHN), as the largest single group of health professionals involved in delivering health services at the workplace, have an important role to play in workplace health management. They are at the frontline in helping to protect and promote the health of working populations. The role of an OHN can be extremely diverse and specific responsibilities will depend upon where an OHN is employed. Given this exposure to a multitude of occupational risks and associated diseases within the world of work, the NIOH strives to ensure capacity building of these specialist nurses. Drs Iyaloo and Magombo, who are senior registrars currently within the Occupational Medicine Section, conducted training for occupational health nurses currently enrolled for Masters in Occupational Health Nursing as well as advanced Diploma in Occupational Health Nursing at the University of the Witwatersrand. Various topics such as introduction to occupational health, an introduction to occupational epidemiology, noise-induced hearing loss, occupational skin diseases and occupational lung disease were presented.



## UPCOMING EVENTS

### NIOH RESEARCH FORUM

The NIOH Research Forum is held monthly and promotes the research of the Institute. The event is an hour long, showcasing two research projects. The upcoming meetings will be on the **17 July 2019, 21 August 2019, 19 September 2019 from 10:00 – 11:00.**

*If you would like to attend kindly RSVP to NtebogengK@nioh.ac.za*

### PATHRED

The 3rd Pathology Research and Development Congress – PathReD 2019 will be held from **18th to 21st July 2019** in Destiny Hotel and Convention Centre, Johannesburg, South Africa. The theme of the PathRed 2019 Congress is “Driving Innovation and Diagnostic Laboratory Excellence”. The programme will incorporate Keynote Presentations, Satellite Sessions, Oral and Poster Presentations, Workshops and Exhibitions. The Congress is being fully organized by the National Health Laboratory Service (NHLS). The PathReD Congress brings together experts across the full spectrum of diagnostic pathology and public health sciences, including pathologists, technologists, technicians, medical scientists, public health specialists, clinicians and public health managers, who have an interest in laboratory medicine.

*For more information or to register to attend, visit the website: <http://www.pathred.co.za/>*

### WEBSTER DAY

The NIOH will be hosting its biennial Webster Day seminar on **7 November 2019**. The Webster Day serves as a platform to discuss current topics related to occupational health and safety; and to profile relevant innovative research in South Africa. This year, the theme addresses the Changing World of Work and some of the new challenges that employees and employers face in the 21st century, and the role of the NIOH in this changing landscape. To learn more about the day or to be added to our distribution list for the event send an email to: [info@nioh.ac.za](mailto:info@nioh.ac.za)

*If you would like to attend kindly RSVP to : MellisaV@nioh.ac.za*

### RECLAIMED WATER & OCCUPATIONAL HEALTH RISK - WORKSHOP

South Africa is considered a water scarce country with limited water resources to meet its domestic, agriculture and industrial demands. Reclaimed/ recycled water (RW) is increasingly being used to alleviate the country's critical water shortages in situations that do not require potable water. As its usage expands, research focusing on the human health risks is critical because exposure to a range of biological & chemical contaminants must be weighed with the benefits to food security, nutrition and livelihoods. To address some of these challenges and encourage safe use of RW, multidisciplinary cooperation is paramount. Therefore, this workshop will bring together representatives from various water sectors including municipalities, water utilities, water treatment companies, industry, solution providers, researchers, and academia to share knowledge and information on critical issues affecting safe RW use.

Date: **25 July 2019**, Sandringham.

*For further information or to RSVP please contact Zubaydah Kirsten: [ZubaydahK@nioh.ac.za](mailto:ZubaydahK@nioh.ac.za)*

### BIORISK MANAGEMENT COURSE

The NIOH has identified biorisk management as a critical element to preventing transmission and protecting worker exposure, and a challenge for many occupational and environmental health professionals. Therefore, we are pleased to again host the Biological Risk Management Course scheduled from **7 – 11 October 2019**. This course intends to close the existing knowledge gaps and empower attendees with the needed skills through case studies, current best practices, and cutting edge science to prevent & control biological exposure and promote worker health.

*For more information or to be added to the distribution list for future notifications for this event send an email to: [ZubaydahK@nioh.ac.za](mailto:ZubaydahK@nioh.ac.za)*

**More info regarding the above-mentioned upcoming events will be posted on our website: [www.nioh.ac.za/events](http://www.nioh.ac.za/events)**

# Health Calendar Days

The NIOH observes many national health calendar days in addition to international days as set out by the United Nations (UN) with the aim of highlighting workplace interventions that could be made.

- **World Day for Safety and Health at Work - 28 April**

Every 15 seconds, a worker dies from a work-related accident or disease. The International Labour Organisation (ILO) reports that there are approximately 340 million occupational accidents and 160 million work-related illnesses reported worldwide yearly. Each year on 28 April the NIOH aims to raise awareness about the importance of health and safety at work. The theme for 2019 is the future of work. According to the ILO “changes in work arrangements, technology (digitalisation and ICT, platform work, automation and robotics), demographics, globalisation, climate change, and other drivers are affecting the dynamics of safety and health and the nature of professions in this area. This is notwithstanding the persistent traditional and re-emerging risks and variations across developing and developed countries”. The NIOH encourages all its stakeholders and partners to seize opportunities for action, to build partnerships and work collectively to ensure the health and safety of all workers.

- **World Hand Hygiene Day – 5 May**

The NIOH Immunology & Microbiology Section each year runs campaigns to promote the importance of hand hygiene, especially in a medical settings. The Allergy team marked the awareness day this year at Cecilia Makiwane Hospital, which included all health workers. The event marked the importance of hand washing in reducing hospital acquired infections. From an occupational health perspective, hand hygiene is one of the most important ways to reduce the transmission of infections in ALL WORK settings.

- **International Nurses Day – 12 May**

Nurses are the frontline champions for wellness and as such their contribution to workplaces and healthcare facilities must be acknowledged. All around the world, 12 May is the day to celebrate the extraordinary contribution nursing makes to the world's health and wellbeing and to commemorate the birth of Florence Nightingale, the founder of modern nursing. The NIOH wishes to thank all the Occupational Health Nurses that are currently under our employ as well as all those that we work with, for their commitment to workers health.



# Awards & Recognition

## ACHIEVEMENTS

Professor M. Gulumian, Head of research within the Toxicology & Biochemistry Section, was appointed as a Member of the Editorial Board of the Jacobs Journal of Nanomedicine and Nanotechnology.

## QUALITY ASSURANCE

The QA Section continued to ensure accreditation through SANAS, for the following specialised laboratories within NIOH:

- Immunology & Microbiology – accredited for ISO 15189: Medical Laboratories
- Occupational Hygiene –Accredited for ISO 17020 and registered with the Department of Labour as an Approved Inspection Authority (AIA).
- Pathology – ISO 15189: Medical Laboratories
- Analytical Services – ISO 15189: Medical Laboratories and ISO 17025: Testing and calibration Laboratories
- NHLS Biobank – Accredited for ISO 9001:2015: Quality Management

## WHO COLLABORATING CENTRE IN OCCUPATIONAL HEALTH

The NIOH has been redesignated as a WHO collaborating centre in occupational health for the fourth successive cycle. The Global Network of WHO Collaborating Centres is to stimulate networking between participating institutions and international partners to provide substantial contribution to the WHO's goal of "occupational health and safety for all". WHO estimates that only about 10 to 15% of workers worldwide have some kind of access to occupational health services, and extending coverage is a key challenge. Hence our participation in the network is important.



## NATIONAL INSTITUTE FOR OCCUPATIONAL HEALTH

Division of the National Health Laboratory Service

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