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There is no health without mental health
Dr David Satcher





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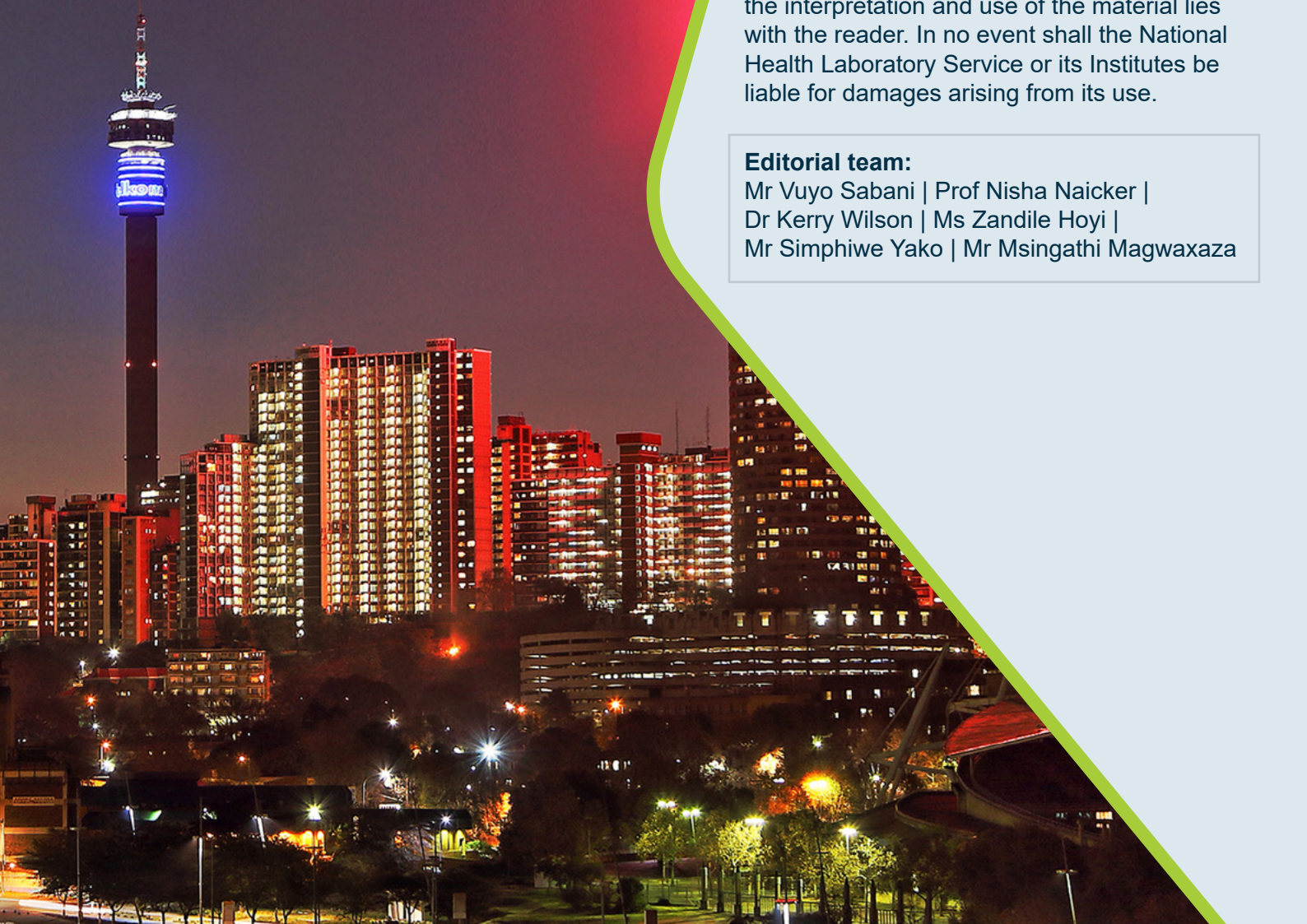
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Mr Vuyo Sabani | Prof Nisha Naicker |
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MESSAGE FROM THE EDITOR

October is commemorated globally as World Mental Health Month to create awareness about mental health and galvanise the public – families, workplaces, stakeholders and communities – to play their part in promoting and embracing the rights of mental health care users. This year’s World Mental Health Day (10 October) theme was “Mental Health is a Universal Human Right.” In this issue, we do our part to put the spotlight on mental health and share insights on how workplaces can create an environment where mental health care users cannot just be accommodated but can prosper.

In the research focus, Professor Nisha Naicker, delves deeper and shares helpful articles on mental health in the workplace. In the service delivery section, we share vital considerations concerning the return to work for workers with mental health disorders. NIOH Acting head of Occupational Medicine, Dr Nompumelelo Ndaba, says looking after workers’ mental health makes business sense and benefits employers and employees. “Employers can save money, increase engagement and productivity in the workplace and eliminate fear of discrimination. Employers also have an opportunity to contribute indirectly towards public health programmes, through health awareness and health promotion accessible through/from their workplaces”

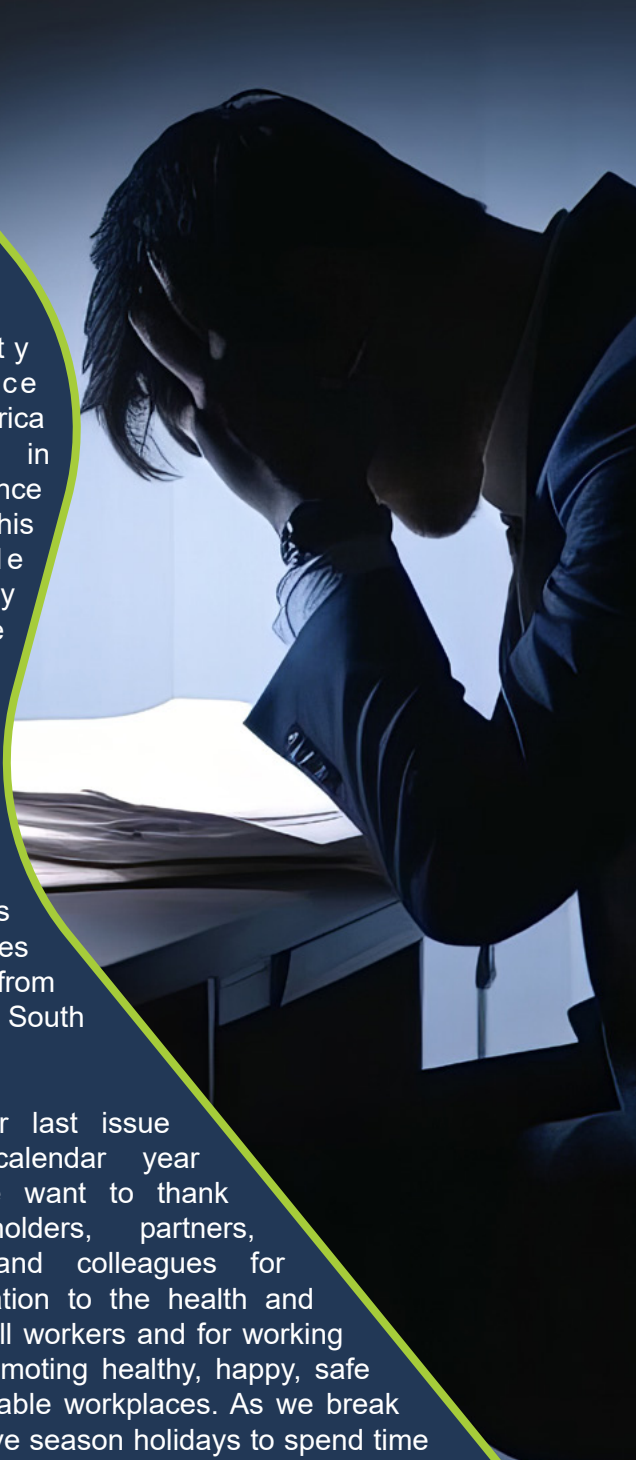
Besides mental health stories, we have the usual features – research publications, in the spotlight, surveillance, teaching and training and NEDLAC/ NIOH COVID-19 occupational health and safety awareness posters. In the publications section, we share research articles which the NIOH staff were part of in quarter two (July –September). In the spotlight, we chat with Ms Lucia Mhlongo, a Medical Scientist and Lecturer in Anatomical Pathology at the Sefako Makgatho Health Sciences University. Ms Mhlongo says her “goal is to innovate point-of-care diagnostic gadgets for common cancers.” We share results from the National Occupational

Mortality Surveillance South Africa (NOMS-SA) in the surveillance section. This nationwide mortality surveillance system measures underlying causes of death associated with specific occupations and industries using data from Statistics South Africa.

This is our last issue for this calendar year (2023). We want to thank all stakeholders, partners, sponsors and colleagues for your dedication to the health and welfare of all workers and for working towards promoting healthy, happy, safe and sustainable workplaces. As we break for the festive season holidays to spend time with our families and friends and refresh, let us extend our kindness to less fortunate people and spread the festive cheer. The Editorial team wishes you all a peaceful, happy festive holiday.

Until next year, take care!

Vuyo Sabani ”



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MESSAGE FROM THE RESEARCH COMMITTEE CHAIR

Welcome to this edition of the OccuZone. This has been a busy quarter for the NIOH. The NIOH made significant contributions to the Public Health Track at the NHLS Pathology Research Development (PathReD) Congress held from the 31st of August to the 3rd of September. Notably, occupational health workshops, roundtable discussions and presentations were made that highlighted varied aspects of Occupational Health. The scientific programme and abstracts can still be viewed on the PathReD website, <https://pathred.nhls.ac.za/>. The 2023 Public Health Association of South Africa was hosted from the 10th to 13th of September in Gqeberha, Eastern Cape. The occupational health sessions covered a range of topics with a focus on health care workers. The programme with a list of topics and presenters can be found at <https://phasa.samrc.ac.za/programme.html>.

The research focus in this issue is on Mental Health in the workplace. In South Africa's health awareness calendar – October is the mental health month. Poor mental health has a serious adverse effect on a worker's performance and productivity that affects the individual and the organisation as well as having negative consequences for society. The NIOH, over the last three years, has conducted research projects on mental health in the informal and formal economy. New projects are being developed to address this challenge. In

addition, the Occupational Medicine Section plays an important advisory role in management around fitness for work and reasonable workplace accommodations for employees and employers.

Teaching and training remains a priority for the NIOH, and there have been various workshops that have been conducted during the last three months. The NIOH/NEDLAC OHS programme that includes posters and short training videos, has been providing essential information to all involved in occupational health and safety, including workers. These will be highlighted in the training section. Access to the material can be found at <https://www.nioh.ac.za/nioh-nedlac-ohs-programme/>.

I do hope that you enjoy reading the issue and the summaries presented invokes your interest. Please feel free to interact with the NIOH researchers and scientists.

Prof Nisha Naicker



RESEARCH



October is the Mental Health Awareness month. The key goal of this month is to create awareness and educate the public, including workers and employers, about mental health as well as reduce the stigma and discrimination that often follows a diagnosis of mental illness.

The World Health Organization states that approximately 15% of adults in the working age group live with mental illness and without effective support, these illnesses can lead to a decreased capacity to be productive, absences from work and increased costs for the worker, employers and society¹. A recent study published in October 2022, showed that the prevalence of depression in the general population ranged from 14.7% to 38.8%, which was much higher

Publications on mental health in workers can be found on the website. <https://www.nioh.ac.za/workplace-based-organizational-interventions-promoting-mental-health-and-happiness-among-healthcare-workers-a-realist-review/>
<https://www.nioh.ac.za/psychological-distress-in-south-african-healthcare-workers-early-in-the-covid-19-pandemic-an-analysis-of-associations-and-mitigating-factors/>
<https://www.nioh.ac.za/prevalence-of-common-mental-disorders-and-associated-factors-among-golf-course-workers-in-johannesburg-south-africa/>
<https://www.nioh.ac.za/trends-in-suicide-mortality-in-south-africa-1997-to-2016/>



than that reported in USA (6.9% in 2011); Australia (10% in 2014) or in Brazil (7.9% in 2016)². In 2016, a study published by Evans-Lacko and Knapp showed that 1 in 4 workers have depression and 80% of these workers will continue working with the illness and this presenteeism (working while unwell) costs South Africa R200 billion per year³.

Thus learning and talking about mental health challenges in the workplace is an important step in decreasing the stigma and finding ways to implement strategies and practices that provide an enabling environment that promotes psychological health and safety in the workplace.

The NIOH will continue its research on mental health in the workplace and thus add to the evidence-based knowledge and recommendations for the prevention of mental illness and to foster an environment where workers living with mental illness can continue to work and thrive in the workplace.

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3. Evans-Lacko S, Knapp M. Global patterns of workplace productivity for people with depression: absenteeism and presenteeism costs across eight diverse countries. *Soc Psychiatry Psychiatr Epidemiol*. 2016 Nov;51(11):1525-1537. doi: 10.1007/s00127-016-1278-4. Epub 2016 Sep 26. PMID: 27667656; PMCID: PMC5101346.



Title: Multivariate analyses of selected trace elements from *Kigelia africana* (Lam.) Benth. plant by ICP-OES: A chemometrics approach

Author(s): Fagbohun, O.F., Olawoye, B., Oriyomi, O.V., Joseph, J.S.

Source: Journal of Trace Elements and Minerals 5 (2023) 100081

Aim: The entire world population is increasingly shifting to the use of plant-based medicines either as supplementation or medication. These medicinal plants absorb trace elements and metals available in the soil solutions in ionic, complexed, or chelated forms and can either be deficient or toxic for human and animal consumption. Therefore, screening these medicinal plants for trace elements or metals is important according to the recommendation of WHO and European legislation (1881/2006/EC).

Methodology: In this study, the concentrations of 12 trace elements and metals (Al, B, Ba, Be, Bi, Ga, K, Li, Mg, Se, Te, and Tl) were determined from *Kigelia africana* leaf and fruit extracts using 700 series Agilent inductively coupled plasma – optical emission spectrometer (ICP-OES) coupled with ultrasonic CETAC U-6000AT+ Nebulizer after microwave-assisted acid digestion of the plant samples with MDS-6G closed microwave digester.

Results: The study revealed that *K. africana* extracts have significant trace elements with the fruit extracts having high concentrations of required trace elements (3.2 mgkg⁻¹ Mg, 67.18 mgkg⁻¹ K,

0.04 mgkg⁻¹ Se, and 0.16 mgkg⁻¹ Al). Interestingly, the fruit and leaf extracts also have the required amount of Boron (B), Bismuth (Bi), Gallium (Ga), and Lithium (Li) which are essential in human brain function, nervous system, and glucose metabolism among other therapeutic functions. Barium (Ba), Beryllium (Be), Tellurium (Te), and Thallium (Tl) are known toxic metals when accumulated in the human body and are found in low concentrations in this study.

Conclusion: This study revealed that trace elements are positively correlated when analyzed with principal component (PCA) and hierarchical cluster (HCA) analyzes. This shows that *K. africana* plant extract can be considered one of the most important medicinal plants with several therapeutic benefits. The concentrations of several trace elements according to recommended dietary allowance (RDA) as well as the correlation between these metals and metalloids are reported for the first time using PCA and HCA.

Keywords: ICP – OES; Trace elements; PCA; HCA; Microwave-assisted acid digestion; *K. Africana*

Title: House-dust mites: Challenges with establishing causal associations in occupational health for ubiquitous agents- A retrospective study

Author(s): Matuka, D.O., Ratshikhopha, E., Singh, T

Source: Current Allergy & Clinical Immunology. June 2023; Vol 36, No 2



Abstract: In this retrospective study, the sensitisation profiles of 846 workers (≥18 years old) were tested with house-dust mite (HDM) allergens and other common aeroallergens for the ten-year period 2002–2022. This study aimed to determine

the proportion of HDM sensitisation among workers from various industries and to highlight the role of HDM exposure and current developments in occupational settings. Exposure to HDM allergen can occur in both households and work environments.

Dermatophagoides farinae and Dermatophagoides pteronyssinus are the most commonly distributed dust mites worldwide. Inhaling allergens produced from these mites can result in respiratory symptoms, rhinitis and asthma in sensitised individuals. Exposure to these allergens in the workplace may result in occupationally acquired or work aggravated allergic reactions, leading to poor quality of life, an increase in absenteeism arising from sickness and, consequently, reduced productivity. The percentage sensitisation among workers referred to the NIOH

Occupational Allergy clinic was 41.67% for D farinae and 33.81% for D pteronyssinus. Nineteen per cent of the patients who reported work-related symptoms tested positive for HDM; therefore, work-related sensitisation is plausible. While Blomia tropicalis was not tested in the current study, it may be beneficial in tropical areas.

Keywords: house-dust mite allergy; asthma; occupational exposure; occupational risk



Title: Contribution of wastewater to antimicrobial resistance: A review article

Author(S): Sambaza, S.S., Naicker, N.

Source: Journal of Global Antimicrobial Resistance 34 (2023) 23–29

Objectives: Antimicrobial resistance (AMR) is a global challenge that has raised concern globally, owing to its detrimental effects on the health and economy of countries. The ever-growing threat of AMR and sources of AMR are still being investigated. Wastewater plays an important role as a habitat for bacteria and an environment conducive to gene transfer. The primary aim of this review was to highlight the contribution of wastewater to AMR.

Methods: Evidence of AMR in wastewater was drawn from literature published in the last 10 years, from 2012 to 2022.

Results: Wastewater from agricultural practices, pharmaceutical manufacturing plants, and hospital effluents was established to promote AMR. Furthermore, stress factors such as the presence of

antibiotics, heavy metals, pH, and temperature initiate and propagate AMR in bacteria living in wastewater. AMR in bacteria from wastewater was established to be either natural or acquired. Wastewater treatment techniques such as membrane filtration, coagulation, adsorption, and advanced oxidation processes have been used to remove resistant bacteria with varying success levels.

Conclusion: Wastewater is a major contributor to AMR, and an understanding of its role in AMR is necessary to find a lasting solution. In this regard, the spread of AMR in wastewater should be considered a threat that requires a strategy to stop further damage.

Keywords: antimicrobial resistance; wastewater; antibiotic molecules; resistant bacteria; resistance gene

Title: The prevalences and levels of occupational exposure to dusts and/or fibres (silica, asbestos and coal): A systematic review and meta-analysis from the WHO/ILO joint estimates of the work-related burden of disease and injury

Author(s): Schlunssen, V., Mandrioli, D., Pega, F., Momen, N.C., Adam, B.,.....Zungu, M., et al.

Source: Environment International 178 (2023) 107980.
<https://doi.org/10.1016/j.envint.2018.06.005>



Background: The World Health Organization (WHO) and the International Labour Organization (ILO) are developing joint estimates of the work-

related burden of disease and injury (WHO/ILO Joint Estimates), with contributions from a large number of individual experts. Evidence from human, animal

and mechanistic data suggests that occupational exposure to dusts and/or fibres (silica, asbestos and coal dust) causes pneumoconiosis. In this paper, we present a systematic review and meta-analysis of the prevalences and levels of occupational exposure to silica, asbestos and coal dust. These estimates of prevalences and levels will serve as input data for estimating (if feasible) the number of deaths and disability-adjusted life years that are attributable to occupational exposure to silica, asbestos and coal dust, for the development of the WHO/ILO Joint Estimates.

Objectives: We aimed to systematically review and meta-analyse estimates of the prevalences and levels of occupational exposure to silica, asbestos and coal dust among working-age (≥ 15 years) workers.

Data sources: We searched electronic academic databases for potentially relevant records from published and unpublished studies, including Ovid Medline, PubMed, EMBASE, and CISDOC. We also searched electronic grey literature databases, Internet search engines and organizational websites; hand-searched reference lists of previous systematic reviews and included study records; and consulted additional experts.

Study eligibility and criteria: We included working-age (≥ 15 years) workers in the formal and informal economy in any WHO and/or ILO Member State but excluded children (< 15 years) and unpaid domestic workers. We included all study types with objective dust or fibre measurements, published between 1960 and 2018, that directly or indirectly reported an estimate of the prevalence and/or level of occupational exposure to silica, asbestos and/or coal dust.

Study appraisal and synthesis methods: At least two review authors independently screened titles and abstracts against the eligibility criteria at a first stage and full texts of potentially eligible records at a second stage, then data were extracted from qualifying studies. We combined prevalence estimates by industrial sector (ISIC-4 2-digit level with additional merging within Mining, Manufacturing and Construction) using random-effects meta-analysis. Two or more review authors assessed the risk of bias and all available authors assessed the quality of evidence, using the ROB-SPEO tool and QoE-SPEO approach developed specifically for the WHO/ILO Joint Estimates.

Results: Eighty-eight studies (82 cross-sectional studies and 6 longitudinal studies) met the inclusion criteria, comprising > 2.4 million measurements covering 23 countries from all WHO regions (Africa,

Americas, Eastern Mediterranean, South-East Asia, Europe, and Western Pacific). The target population in all 88 included studies was from major ISCO groups 3 (Technicians and Associate Professionals), 6 (Skilled Agricultural, Forestry and Fishery Workers), 7 (Craft and Related Trades Workers), 8 (Plant and Machine Operators and Assemblers), and 9 (Elementary Occupations), hereafter called manual workers. Most studies were performed in Construction, Manufacturing and Mining. For occupational exposure to silica, 65 studies (61 cross-sectional studies and 4 longitudinal studies) were included with > 2.3 million measurements collected in 22 countries in all six WHO regions. For occupational exposure to asbestos, 18 studies (17 cross-sectional studies and 1 longitudinal) were included with $> 20,000$ measurements collected in eight countries in five WHO regions (no data for Africa). For occupational exposure to coal dust, eight studies (all cross-sectional) were included comprising $> 100,000$ samples in six countries in five WHO regions (no data for Eastern Mediterranean). Occupational exposure to silica, asbestos and coal dust was assessed with personal or stationary active filter sampling; for silica and asbestos, gravimetric assessment was followed by technical analysis. Risk of bias profiles varied between the bodies of evidence looking at asbestos, silica and coal dust, as well as between industrial sectors. However, risk of bias was generally highest for the domain of selection of participants into the studies. The largest bodies of evidence for silica related to the industrial sectors of Construction (ISIC 41–43), Manufacturing (ISIC 20, 23–25, 27, 31–32) and Mining (ISIC 05, 07, 08). For Construction, the pooled prevalence estimate was 0.89 (95% CI 0.84 to 0.93, 17 studies, I 2 91%, moderate quality of evidence) and the level estimate was rated as of very low quality of evidence. For Manufacturing, the pooled prevalence estimate was 0.85 (95% CI 0.78 to 0.91, 24 studies, I 2 100%, moderate quality of evidence) and the pooled level estimate was rated as of very low quality of evidence. The pooled prevalence estimate for Mining was 0.75 (95% CI 0.68 to 0.82, 20 studies, I 2 100%, moderate quality of evidence) and the pooled level estimate was 0.04 mg/m³ (95% CI 0.03 to 0.05, 17 studies, I 2 100%, low quality of evidence). Smaller bodies of evidence were identified for Crop and animal production (ISIC 01; very low quality of evidence for both prevalence and level); Professional, scientific and technical activities (ISIC 71, 74; very low quality of evidence for both prevalence and level); and Electricity, gas, steam and air conditioning supply (ISIC 35; very low quality of evidence for both prevalence and level). For asbestos, the pooled prevalence estimate for Construction (ISIC 41, 43, 45,) was 0.77 (95% CI 0.65 to 0.87, six studies, I 2 99%, low quality of evidence) and the level estimate was rated as of

very low quality of evidence. For Manufacturing (ISIC 13, 23–24, 29–30), the pooled prevalence and level estimates were rated as being of very low quality of evidence. Smaller bodies of evidence were identified for other mining and quarrying (ISIC 08; very low quality of evidence for both prevalence and level); Electricity, gas, steam and air conditioning supply (ISIC 35; very low quality of evidence for both prevalence and level); and Water supply, sewerage, waste management and remediation (ISIC 37; very low quality of evidence for levels). For coal dust, the pooled prevalence estimate for Mining of coal and lignite (ISIC 05), was 1.00 (95% CI 1.00 to 1.00, six studies, I² 16%, moderate quality of evidence) and the pooled level estimate was 0.77 mg/m³ (95% CI 0.68 to 0.86, three studies, I² 100%, low quality of evidence). A small body of evidence was identified for Electricity, gas, steam and air conditioning supply (ISIC 35); with very low quality of evidence for prevalence, and the pooled level estimate being 0.60 mg/m³ (95% CI – 6.95 to 8.14, one study, low quality of evidence).

Conclusions: Overall, we judged the bodies of

evidence for occupational exposure to silica to vary by industrial sector between very low and moderate quality of evidence for prevalence, and very low and low for level. For occupational exposure to asbestos, the bodies of evidence varied by industrial sector between very low and low quality of evidence for prevalence and were of very low quality of evidence for level. For occupational exposure to coal dust, the bodies of evidence were of very low or moderate quality of evidence for prevalence, and low for level. None of the included studies were population-based studies (i.e., covered the entire workers' population in the industrial sector), which we judged to present serious concern for indirectness, except for occupational exposure to coal dust within the industrial sector of mining of coal and lignite. Selected estimates of the prevalences and levels of occupational exposure to silica by industrial sector are considered suitable as input data for the WHO/ILO Joint Estimates, and selected estimates of the prevalences and levels of occupational exposure to asbestos and coal dust may perhaps also be suitable for estimation purposes

Keywords: silica; asbestos; coal dust; exposure prevalence; exposure levels; systematic review



Title: New global indicator for workers' health: mortality rate from diseases attributable to selected occupational risk factors

Author(s): Pega, F., Al-Emam, R., Cao, B., Davis, C.W., Edwards, S.J.,....Kgalomono S.M., et al.

Source: Bull World Health Organ 2023;101:418–430Q| doi: <http://dx.doi.org/10.2471/BLT.23.289703>

Abstract: Through sustainable development goals 3 and 8 and other policies, countries have committed to protect and promote workers' health by reducing the work-related burden of disease. To monitor progress on these commitments, indicators that capture the work-related burden of disease should be available for monitoring workers' health and sustainable development. The World Health Organization and the International Labour Organization estimate that only 363 283 (19%) of 1 879 890 work-related deaths globally in 2016 were due to injuries, whereas 1 516 607 (81%) deaths were due to diseases. Most monitoring systems focusing on workers' health or sustainable development, such as the global indicator framework for the sustainable development goals, include an indicator on the burden of occupational injuries. Few such systems, however, have an indicator on the burden of work-related diseases. To

address this gap, we present a new global indicator: mortality rate from diseases attributable to selected occupational risk factors, by disease, risk factor, sex and age group. We outline the policy rationale of the indicator, describe its data sources and methods of calculation, and report and analyse the official indicator for 183 countries. We also provide examples of the use of the indicator in national workers' health monitoring systems and highlight the indicator's strengths and limitations. We conclude that integrating the new indicator into monitoring systems will provide more comprehensive and accurate surveillance of workers' health, and allow harmonization across global, regional and national monitoring systems. Inequalities in workers' health can be analysed and the evidence base can be improved towards more effective policy and systems on workers' health.

Title: Sociodemographic and environmental factors associated with diarrhoeal illness in children under 5 years in Uganda, 2016: a cross-sectional study



Author(s): Ssekandi, N., Tlotleng, N., Naicker, N.

Source: BMC Infectious Diseases (2023) 23:480 <https://doi.org/10.1186/s12879-023-08458-8>

Background: Uganda is among the 10 countries in the sub-Saharan Africa region that have the highest prevalence of diarrhoeal disease. Evidence suggests that the severity of childhood diarrhoeal disease is escalated through various sociodemographic and environmental factors.

Objectives: To assess prevalence of diarrheal illness in children below the age of 5 years in Uganda in 2016 and associated factors.

Methods: A cross-sectional study was employed that analyzed secondary data from the 2016 Uganda Demography and Health Surveys. Children with and without diarrhea were compared. A logistic regression was used to determine sociodemographic and environmental factors associated with diarrheal illness in children with statistical significance at $p < 0.05$.

Results: The prevalence of childhood diarrhoeal illness for children below the age of 5 years in Uganda was 20.9% ($n=2838/13,753$). There was a statistically

significant difference when comparing children diarrhoeal with the following sociodemographic factors: caregiver's age, child's age and gender and duration of breastfeeding ($p < 0.0001$). Children with a caregiver aged between 15 and 24 years (aOR; 1.42; 95% CI: 1.24–1.62) and 25–34 years (aOR; 1.19; 95% CI: 1.04–1.37) were more likely to report diarrhoeal disease, compared to those with a caregiver aged 35–49 years. For environmental factors, households using springs water, access to health facility and children who received a dose of vitamin A had a decreased risk of reporting children diarrhoeal.

Conclusion: Significant factors in the study like caregiver's age, gender and duration of breastfeeding will create the opportunity for all interventions to shift their focus to these factors thus a better evidence-based approach to reducing of diarrhoeal disease will be achieved in the country.

Keywords: diarrhea; sociodemographic factors; environmental factors; children under five; Uganda



Title: Chirality in nanomaterials occurrence, methods of determination and biochemical significance

Utembe, W.

Source: In Some Key Topics in Chemistry and Biochemistry for Biotechnologists (pp. 177-190). CRC Press (**Book Chapter**)

Abstract: Chirality, which arises from lack of symmetry, results in pairs of enantiomers that possess similar physico-chemical properties but different chiroptical properties. The differences in chiroptical properties of enantiomers can be assessed using methods that are based on circular dichroism, polarimetry and optical rotary dispersion. Chirality is not limited to organic molecules but also exists in

inorganic compounds and nanomaterials (NMs) on which chirality can be bestowed by the adsorption of chiral molecules, asymmetric arrangements of achiral ligands, or by crystal design that exposes unequal stepped surface structures. Chirality in NMs can be stronger than those observed in chiral molecules, and biochemical receptors can differentiate between enantiomeric pairs of chiral NMs. As chirality affects

the biological properties of some NMs and not of others, investigations of the effects of chirality of NMs are needed on a case-by-case basis. Indeed, although most NMs are achiral, it is very important to take into account the effects of chirality whenever it occurs, so that biochemical studies may have to

be conducted on each enantiomer, the racemate and any relevant enantiomeric ratios of the NMs. This chapter discusses occurrence of chirality in NMs, methods of analysis, and the implications of chirality on biochemical systems.

Title: A new tool for evaluating health equity in academic journals; the Diversity Factor

Author(s): Galifant, J., Zhang, J., Whebell, S., Quion, J., Escobar, B.,**Jina, R.**

Source: PLOS Glob Public Health 3(8): e0002252. <https://doi.org/10.1371/journal.pgph.0002252>



Abstract: Current methods to evaluate a journal's impact rely on the downstream citation mapping used to generate the Impact Factor. This approach is a fragile metric prone to being skewed by outlier values and does not speak to a researcher's contribution to furthering health outcomes for all populations. Therefore, we propose the implementation of a Diversity Factor to fulfill this need and supplement the current metrics. It is composed of four key elements: dataset properties, author country, author gender and departmental affiliation. Due to the significance of each individual element, they should be assessed independently of each other as opposed to being combined into a simplified score to be optimized. Herein, we discuss the necessity of such metrics, provide a framework to build upon, evaluate the current landscape through the lens of each key element and publish the findings on a freely available website that enables further evaluation. The OpenAlex database was used to extract the metadata of all papers published from 2000 until August 2022, and Natural

language processing was used to identify individual elements. Features were then displayed individually on a static dashboard developed using TableauPublic, which is available at www.equitable-science.com/. In total, 130,721 papers were identified from 7,462 journals where significant underrepresentation of LMIC and Female authors was demonstrated. These findings are pervasive and show no positive correlation with the Journal's Impact Factor. The systematic collection of the Diversity Factor concept would allow for more detailed analysis, highlight gaps in knowledge, and reflect confidence in the translation of related research. Conversion of this metric to an active pipeline would account for the fact that how we define those most at risk will change over time and quantify responses to particular initiatives. Therefore, continuous measurement of outcomes across groups and those investigating those outcomes will never lose importance. Moving forward, we encourage further revision and improvement by diverse author groups in order to better refine this concept.



Title: Title: Provision of HIV prevention and care services to farmworkers in sub-Saharan African countries

Author(s): **Mlangeni, N.**, Adetokunboh, O., Lembani, M., Malotle, M., Ngah, V., Nyasulu, P.S.

Source: Trop Med Int Health. 2023;1–10.

Objectives: To summarise data on human immunodeficiency virus (HIV) services available to farmworkers in sub-Saharan Africa (SSA).

Methods: We conducted a systematic review to understand which HIV prevention and care services were accessed by farm workers in SSA. MEDLINE

(PubMed), Embase, CINAHL (EBSCO Host), Cochrane library, African Index Medicus, Scopus, Google Scholar, Open Grey, and Web of Science Proceedings Citation Index were searched. Studies were eligible for inclusion if they measured or reported on the presence of HIV workplace policy frameworks, guidelines, or programmes for HIV prevention, treatment and care services, and other treatment modalities specifically targeting farmworkers.

Results: Nine studies published between 2005 and 2019 were included in the review. Six themes emerged from included studies, which include HIV policy, HIV prevention (awareness, education, and condom supply), voluntary counselling and testing, antiretroviral therapy (ART), linkage to care, and mobile clinic. Though availability of an HIV policy was inadequate, a significant positive impact of the HIV policy in influencing behaviour change was reported. Most of the farm workers could access HIV education

and condom supply in their places of work. Access to ART, treatment support, and linkage to care was inadequate, but community outreach programmes and mobile clinics showed success in reaching a high number of workers with HIV testing and treatment. A majority of farm workers faced barriers in accessing government health facilities.

Conclusions: The findings suggest that there is poor access to HIV services for farmworkers in SSA. There is a dire need to scale up HIV services and programmes, including mobile health facilities, in agricultural settings. Due to high labour migration patterns among farmworkers, we recommend cross-country HIV programmes that allow continuity of care across borders

Keywords: Access to care, Farmworkers, HIV, Migrant labourers, Migrants health, Rural health



Lucia N Mhlongo

**Medical Scientist/ Lecturer
Anatomical Pathology (Sefako Makgatho Health
Sciences University)**

Why did you choose this career?

The curiosity to discover the biological processes that underpin the development of diseases, especially cancer and the desire to serve the community. Growing up in Lefara village, Limpopo, I witnessed people dying from cancer that was diagnosed late. My main goal is to innovate point-of-care diagnostic gadgets for common cancers.

What training and qualifications did you undergo and where?

I hold a BSc in Medical Science from the University of Limpopo, a PGDIP in Public Health from UKZN and an MSc in Medicine in Anatomical Pathology from Sefako Makgatho Health Sciences University.

What are the most enjoyable aspects of doing research?

Research has allowed me to pursue my career and personal interests at the same time. It allows me to learn new things, and as a researcher, I have improved my problem-solving skills. I always try to challenge myself to develop new essays or ways of doing things in the laboratory. Working on collaborative research projects has given me an opportunity to work closely with experienced and esteemed research mentors from various disciplines.

Why did you choose this field of research?

I chose this field of research because I realised that many scientists and medical professionals were focusing on communicable diseases, and non-communicable diseases, especially cancer, which has become the leading cause of death in both pediatric and adult patients. My main research passion is cancer genomics and immunopathogenesis.

What are your research highlights to date?

Being able to publish my first article as the first author and initiate my first independent research project this year. Another highlight is being awarded K-Funding for the independent project for the 2023/2024 cycle.

What are your career goals?

My career goals are to obtain my PhD degree in the next three years and become a principal medical scientist within the next five years.

National Occupational Health Surveillance is required to support the prevention of occupational injuries and disease. Surveillance is necessary to identify the burden of occupational diseases and injuries and identify the sectors where more controls maybe required. Surveillance provides information for the allocation of limited resources and the planning of services, compensation and inspections.



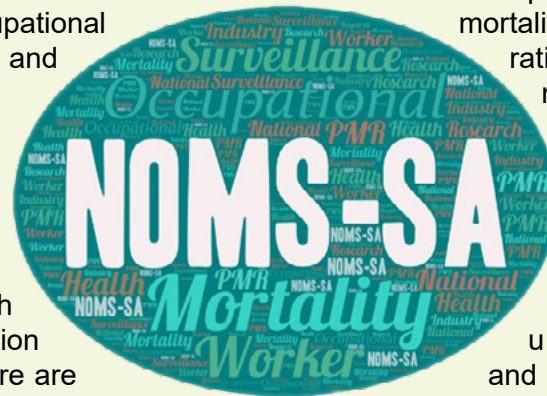
NATIONAL OCCUPATIONAL MORTALITY SURVEILLANCE – SOUTH AFRICA (NOMS SA)

Currently, South Africa does not have a national occupational health surveillance system and the information on compensation for occupational injuries and disease is scattered between government departments. The NIOH Epidemiology and Surveillance unit established the National Occupational Mortality Surveillance South Africa (NOMS-SA). This is a nationwide, mortality surveillance system that measures underlying causes of death associated with specific occupations and industries using data from Statistics South Africa. The system is based on a similar surveillance system in the USA (NOMS). NOMS-SA aims to describe the relationship between work and wellbeing in order to inform policy development to improve worker safety and health. It can provide information for workplaces and educational activities. Surveillance of occupational mortality can enable research and prevention strategies.

Deaths registered from 2009 – 2016 contain information on usual sub-occupation and industry. Occupation was defined using the South African Standard Classification of Occupations (SASCO). There are nine major occupation groups, which then divide into 42 sub-major groups. These sub-major groups then divide again into minor occupations. Data on minor occupation was captured for the years 2013, 14 and 15. This data is used for further analysis. The underlying cause of death grouping was provided by the South African National Burden of Disease Study (NBD). The NBD study developed its list to reflect local cause of death patterns. A report is available for each year from 2012 to 16 on the NIOH website. These reports provide proportional mortality ratios (PMR) for each occupational group for the top four causes of communicable disease deaths; the top five non-communicable diseases, four unnatural causes of death and ill defined deaths. A PMR is the ratio calculated by determining the proportion of deaths from a specific cause in

an occupational group divided by the proportion in the unspecified occupation group.

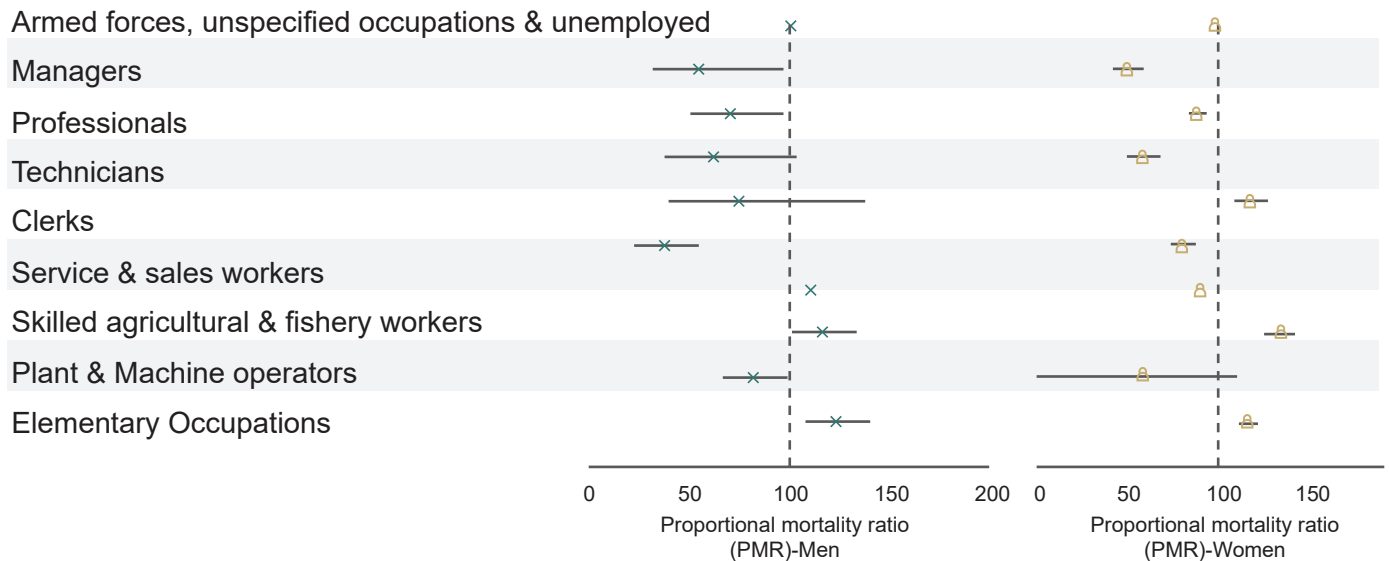
The years 2013-15 contain information on minor occupation groups and more detailed analyses were conducted on the relationship with specific occupations and industries. A total of seven reports are available on HIV, TB, Ischemic heart disease, Diabetes, Renal Disease, Hypertension and Asthma. These are all available on the NIOH website.



In the reports, proportional mortality ratios are used, a ratio of 100 indicates no increase or decrease in the cases in the occupation group compared to the unspecified and unemployed occupation group.

In the figure below from the Asthma NOMS SA report, the major occupation groups with significantly elevated PMRs for asthma-related deaths are clerks, craft and related trade workers and elementary workers. Lower skilled (lower socio-economic) workers are particularly vulnerable and need special consideration in future research.

5. Asthma-related mortality by sex and major occupation



The results of the analyses do not prove that the observed risk of death involving asthma is directly caused by occupational exposure. However, the information is valuable to show that risks may be different between men and women in different occupations. Suggesting that controls and limits may need to take sex into account when being established. Crafts and related trade workers along with elementary workers showed increased odds of asthma death compared to the unemployed and unspecified general public of working age. These two sectors should be included in upcoming research to clarify these findings and identify associated risk factors including possible occupational exposures.

The findings presented here should be interpreted bearing in mind the limitations of this data. This data contains missing information on occupation and industry thus reducing the amount of data available to analyse. PMRs can only be calculated where data on occupation or industry are available; they are not a reflection of length of employment although the question is phrased

as usual occupation. A statistically significantly elevated PMR cannot be interpreted directly as a causal relationship between the occupation and the cause of death. A lack of significantly increased PMRs may represent the selection of healthy workers for particular occupations and/or improved socioeconomic circumstances of workers compared to the general population.

Despite the limitations, these findings provide nationally representative information that is valuable to highlight sectors where public health (and occupational health) interventions may be needed. This serves to focus limited resources and health information dissemination where it will have the most impact. The patterns seen in the proportional mortality ratios vary across different diseases suggesting in some cases occupational and lifestyle links. Research and inspection agendas may be improved using these occupation focused analyses particularly where international research supports the association.

The NIOH delivers specialised and advisory services in occupational health and safety through its multidisciplinary cohort. These services are delivered to all workplaces as required. As part of commemorating Mental Health Awareness Month (October) in this issue, we outline mental health in the workplace. We also share light on workplace interventions on mental health. The NIOH provides an advisory assistance on case management in relation to fitness for work and reasonable workplace accommodations.



KEY CONSIDERATIONS CONCERNING RETURN TO WORK FOR WORKERS WITH MENTAL HEALTH DISORDERS

The increasing burden of mental health disorders, whether due to workplace or non-workplace origin, has led to increasing levels of disability and sickness absence; thus significantly impacting the productivity in the working-age population in recent years.

In the United Kingdom (<https://www.mentalhealth.org.uk/explore-mental-health/mental-health-statistics/cost-diagnosed-mental-health-conditions-statistics>), mental health disorders affect 17% of the population and incur an economic cost of about £70 billion corresponding to 4.5% of its gross domestic product. Mental health is the leading cause of sickness absence in the United Kingdom, accounting for 70 million working days lost per year.

Locally, one study by the Witwatersrand School of Public Health researching the sickness absenteeism in health professionals in a South African provincial health department revealed that mental health disorders, followed closely by musculoskeletal conditions, were the main medical reason for approved sickness absence in these workers (<https://assets.researchsquare.com/files/rs-136797/v1/375156e2-9e78-440c-b878-a3d5d16e72c1.pdf?c=1631869770>).

Coincidentally, there is increasing evidence supporting the benefits of work for workers with medical conditions, including mental health disorders. The therapeutic benefits are voluminous in promoting recovery and rehabilitation, leading to better health outcomes and reducing the risk of long-term incapacity. Furthermore, work eliminates the harmful social effects caused by long sickness absences and improves the social status of workers, also supporting daily routine and providing a personal sense of achievement for the worker. This, particularly in workers who have mental health

disorders, can be a valuable tool in assisting recovery. While workers with serious mental health disorders can have work limitations, the benefits of working may outweigh the risks for workers with less serious mental health disorders.

In accordance with this, employers have moral, legal and economic reasons to support the mental health of their workforce and, if necessary, consider workplace adjustments to accommodate workers with mental health disorders.

Aside from the management of existing mental health disorders, it is also important for employers to identify, assess and address factors in the workplace that may lead to or exacerbate mental ill health. Such may include traumatic events at work, unrealistic timelines, and other workplace issues. While these are common encounters in workplaces, most workers will gain resilience with repeated exposures, which might trigger unpleasant behaviours or effects among workers with mental health disorders. Access to supportive structures, training and programmes enhancing awareness of mental health issues as well as conducive, non-discriminatory workplace practices are some of the occupational health interventions that could be considered.



Recent changes in the South African Compensation for Occupational Injuries and Diseases Amendment Act of 2022 (updated from the Compensation for Occupational Injuries and Diseases Act of 1993) further support the rationale that continued work is beneficial and makes provisions for clinical, vocational and social rehabilitation to assist in restoring and maintaining employment after an occupational injury or disease. This is in contrast to the longstanding belief that healthcare or medical treatment plays a consummate role in the management of workers' conditions. This alone has been noted to have little impact on work outcomes when delivered in isolation. These solutions can remove individuals from the workplace and act as barriers to successful reintegration back to work.

Consequently, workplaces have a key role to play if the reintegration of ill or injured workers back into the workplace is to be successful. A proactive approach from employers towards sickness absence management is essential and should include temporary provision of modified work and adjustment of the working environment where required.

The relationship between line manager and worker together with effective communication between all role players has been found to have a major impact on worker well-being and influence workers' return to work behaviour. Policies and procedures that improve line management should be developed in

workplaces alongside training and organisational approaches that increase worker participation in decision-making and problem-solving. Improved communication has also been found to be effective at reducing work-related ill-health and sickness absence.

Effective and prompt occupational health services including fitness for work assessment, vocational rehabilitation, and workplace management including adjustments that can range from changes in hours, duties, working environment or even increased support; can maximize the likelihood of successful reintegration into the workplace.

As occupational professionals, we have a role to play in changing the mind set within the workplace to one that enables the facilitation of workers with medical conditions, particularly mental health disorders, back into the workplace and preventing the harmful health effects of long-term sickness absence. This includes the review of workplace hazards likely to have negative effects on the reintegration of workers back into the workplace. While most interventions can be directed to wider groups within organizations, case management assist with targeted management of individual cases, involving all relevant parties beyond the clinical team in the workplace. This might include cohorts such as line management, employee assistant programs and human resources.

In the training sector, the goals of the NIOH with regard to impact are: a healthy and safe work environment; a healthy worker whose work ability is good; and a work community that supports health and well-being. In this issue, we look at the knowledge exchange and capacity building training activities undertaken by the NIOH during the second quarter of this year.



NIOH stats for Zoom webinars

- o 108 Occupational Health and Safety/ COVID-19 training webinars:
- o 60 048 attendees (March 2020 to July 2023)
- o 556 participants per webinar
- o 1540 participants (an average of) per month
- o 64.3% women and 35.7% men.

NIOH Training Conducted – July to September 2023

1. Epidemiology and Surveillance Section’s “Introduction to Basic Epidemiology and Biostatistics Training”

The NIOH’s Epidemiology and Surveillance Section conducted an online five-day workshop titled “Introduction to Basic Epidemiology and Biostatistics Training” between 10 to 14 July 2023.

The workshop covered the following topics:

- Introduction to Epidemiology study design
- Measures of occurrence
- Measures of effect
- Biostatistics – central tendency and spread
- Hypothesis testing - p values vs 95% CI
- The 2x2 tables/ chi square
- Sampling and sample size
- Biostatistics t-test and rank sum; and
- RedCap training

2. Occupational Medicine Section’s “Work-related Upper Limb Disorders Workshop

The NIOH’s Occupational Medicine Section conducted a two-day in-person workshop for Occupational Medicine Practitioners on “Work-related Upper Limb Disorders” on 12 and 13 July 2023. The workshop was held at the NICD facilities in Sandringham and covered the following topics:

- Work-related Musculoskeletal Disorders (WMSDs);
- Common Work-related Upper Limb Disorders (WRULDs);
- Work-related Upper Limb Disorders (WRULDs) & Risk factors;
- Identification of risk factors;
- Where are we with WRULDs?
- Workplace management;
- Legislation (Ergonomics Regulations of 2019);
- Screening of Ergonomic risk factors (role of Drs);
- Ergonomic risk assessment;
- Surveillance of WRULDs;
- Focus on diagnosis of WRULDs;
- Medical surveillance, compensation; and programme development – WRULDs.

This training was attended by **15** participants.

NEDLAC/ NIOH COVID-19 LEGACY TRAINING PROGRAMME

3. 7th NEDLAC/NIOH Webinar: Communicable diseases in the workplace

The seventh NEDLAC/NIOH COVID-19 Legacy Training Programme webinar was on “Communicable diseases in the workplace”. The webinar presentations were broadcast live on the Zoom platform on 27 July 2023.

The speakers were **Prof Muzimkhulu Zungu**, Public Health Medicine Specialist with further training and practice in Occupational Health, NIOH and University of Pretoria; **Dr Noncy Gomba**, Senior Research Scientist and Waterborne Pathogens Laboratory Manager, Immunology and Microbiology Section, NIOH; **Prof Cheryl McCrindle**, Emeritus Professor and Extraordinary Professor in the Department of Veterinary Public Health, University of Pretoria; and **Prof Lucille Blumberg**, Consultant at Right to Care. **Dr Edward Sepirwa**, Occupational Medicine Section, NIOH, ran the Question and Answer slot.

This webinar was attended by **702** participants (64.3% were female and 35.7% male) representing 530 workplaces.

Webinar video recording URL: https://www.youtube.com/watch?v=_vfKC5sfEaA

4. Occupational Medicine Section’s Training Session on the Compensation for Occupational Injury and Disease Act (COIDA) for Domestic Workers

The NIOH partnered with the American Centre for International Labour Solidarity (also known as the Solidarity Centre) and Richard Spoor Incorporated to run the 1-day workshop for domestic worker organisations and advice offices.

The objectives of the training were:

- To learn about the work injuries and diseases that domestic workers may get;
- To understand the workers’ compensation system (COIDA Act) and what nurses and doctors need to do to support domestic worker to get compensation; and
- To identify what lawyers, unions and workers can do to improve the submission and processing of workers’ compensation claims.

Emeritus Professor **David Rees** and **Dr Nompumelelo Ndaba** (Head of the Occupational Medicine Section) presented the various sessions and break-away groups. **Ashraf Ryklief** (National OHS Training Manager) facilitated the workshop process.

The participants included members and representatives from the South African Domestic Service and Allied Workers Union (SADSAWU), the Casual Workers Advice Office (CWAO), the Socio-Economic Rights Institute of South Africa (SERI), the Movement of Advocacy Group in Southern Africa (MAGSA), the United Domestic Workers of South Africa (UDWOSA), the Kempton-Thembisa Advice Centre and IZWI Domestic Worker Alliance (DWA).

The workshop was attended by **50** participants.

UPCOMING OHS TRAINING

9th NEDLAC/NIOH Webinar: “Update on Long COVID”

- Date: Thursday, 23 November 2023
- Platform: Zoom

Note:

The webinar topic, date and time may be subject to change. For further details, look out for the official NIOH webinar notices/invites. The webinar invitation and programme, including the Zoom link to register, will be circulated in due course.



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Dr Charlene Andraos of the Toxicology and Biochemistry section, was appointed as Honorary Lecturer and Honorary Senior Researcher within the School of Public Health of the University of Witwatersrand from 1 September 2023.



RECOGNITION AND ACHIEVEMENTS

CLEANING AND DISINFECTING

OF WORKPLACES

Should a business be closed for cleaning and disinfecting when a COVID-19 positive case is identified?

- No. It is not necessary to close the entire business provided the affected area can be closed off for a minimum of 3 days.
- Cleaning and disinfection will be required if the affected area needs to be reoccupied within 3 days.

Scan the QR code to view the Department of Health's latest statement on cleaning and decontamination of workplaces. The document is also available from the NIOH website under COVID-19.



Reference: Department of Health, Statement on cleaning and decontamination of workplaces in the context of COVID-19 (version 2: 10 August 2021)

THE VALUE OF MASKS IN THE WORKPLACE

The workplace health and safety risk assessment will inform the use of masks.

Other considerations that will inform mask wearing:

- » Testing positive for COVID-19 infection
- » Recent exposure to someone with COVID-19 infection
- » Suspecting you have a respiratory infection
- » Being vulnerable to illness
- » Or any combination of the above, especially when working in a crowded or poorly ventilated space



Surgical Mask



- » Single use
- » Disposable
- » Primarily for use in healthcare settings

Cloth Mask



- » Re-usable
- » Washable
- » For general use

Both surgical and cloth masks are used to limit the spread of infectious droplets.

Bibliography

- » SARS-COV-2 in the Workplace, 2022
- » WHO updates COVID-19 guidelines on masks, treatments and patient care, 2023



Health and Safety Representatives



Health and Safety Representatives (HSR) are critical for workplaces. When appointing HSR, take note of the following:



- HSR appointments must be in writing and for a specified period.
- Only full-time workers who know the conditions and activities of the workplace are eligible to be HSR.
- Appointed HSR must be trained on how to perform their duties.
- HSR training and duties must be performed during ordinary working hours.
- Shops and offices must have 1 HSR for every 100 employees. All other workplaces must have 1 HSR for every 50 employees.

Scan the QR code to download the Occupational Health and Safety Act



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 Compensation Fund
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