



NATIONAL INSTITUTE FOR  
OCCUPATIONAL HEALTH

Division of the National Health Laboratory Service

VOLUME 5  
ISSUE 4  
MAY 2024

# OccuZone



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# Vuyo Sabani

## MESSAGE FROM THE EDITOR

**W**elcome to the TB Issue, where we put the spotlight on all things TB in the workplace. Many researchers state that despite the presence of a well-established tuberculosis (TB) control programme in South Africa, the country still faces a significant public health issue due to the high incidence of TB. The NIOH researchers have investigated the effects of TB in the workplace and proposed various measures to improve the status quo. See the research focus for more on this, where the NIOH Research Committee Chairperson, Prof Nisha Naicker, sheds more light. A research paper titled: *Factors associated with TB screening among agricultural workers in Limpopo Province, South Africa*, led by the NIOH's TB in the Workplace Unit, found that "workers were also more likely to be screened if they had TB services at their workplace, but very few workers had access to health services in the workplace."

In the features and news section, Dr Kerry Wilson delves deeper into TB in the workplace; she recommends that awareness campaigns should be included to reduce the stigma of tuberculosis in the workplace and ensure the active screening of high-risk groups to increase early TB diagnosis and reduce the risk of recurrent infection. In the same section, we spoke with an occupational hygienist, Gabriel Mizan, about asbestos in the workplace. Did you know that employers are required by law (Asbestos Abatement Regulations, 2020) to label and keep an inventory of all asbestos-containing materials (ACMs) on their premises? The inventory should include information regarding the nature and location of the ACMs and their quantity and condition.

In the service delivery section, we showcase the services of the NIOH's HIV TB in the Workplace

Unit. In the teaching and training segment, the Immunology and Microbiology Section shares more details about the "Bio-risk management workshop training on biohazard risks in workplaces." This interactive course is designed to enhance participants' knowledge and skills in identifying the risk of hazardous biological agents in the workplace.

A heartfelt thank you to all our contributors from the editorial team. We hope you find this issue informative and encourage you to reach out if you would like to contribute to future publications.

“

workers were also more likely to be screened if they had TB services at their workplace, but very few workers had access to health services in the workplace.

”

**Until the next issue, Cheers!**





# Prof Nisha Naicker

## RESEARCH FOCUS

In 2021, the WHO estimated a global total of 10.6 million people who fell ill with TB, and among these, 6.7% were also living with HIV.<sup>1</sup> There was an increase of 4.5% of TB cases compared to 10.1 million in 2020. In South Africa, in 2022, the WHO reported that there were 280 000 people who fell ill due to TB (468 cases for every 100000 people).<sup>1</sup> The increase in TB globally in 2021 may be a reflection of the possible impact of disrupted TB services during the COVID-19 pandemic that resulted in a decrease in the number of newly diagnosed patients.<sup>1</sup> An increase in the number of people with TB not being diagnosed by health services will result in more people being untreated in the community, thus increasing the spread of TB and potentially increasing the risk in the workplace.

TB in the workplace is a very real challenge. Occupational TB occurs when a worker acquires the infection or develops active tuberculosis as a result of workplace exposure. Workplace exposure can occur due to exposure from co-workers with active TB and due to activities in the workplace that increase their risk of developing active TB, such as exposure to silica in the mining industry. In order to assist with establishing a framework to prevent TB in the workplace, the NIOH has conducted several research projects on TB and its impact on workers' health in South Africa.

The research conducted since 2018 is highlighted below. Prior to 2018 access to the reports and publications can be obtained from the NIOH Information Services.

- ⦿ Preventing Occupational Tuberculosis in Health Workers: An Analysis of State Responsibilities and Worker Rights in Mozambique.<sup>2</sup>
- ⦿ HIV and TB Workplace Program for Street Vendors: A Situational Analysis.<sup>3</sup>
- ⦿ Factors associated with TB screening among agricultural workers in Limpopo Province, South Africa. This study investigated factors associated with TB screening uptake for agricultural workers in Limpopo Province, South Africa.<sup>4</sup>
- ⦿ Risk of Occupational exposure to Airborne Mycobacterium tuberculosis in a Three-Tier Public Healthcare System in South Africa.<sup>5</sup>
- ⦿ Occupational Tuberculosis Among Laboratory Workers in South Africa: Applying a Surveillance System to Strengthen Prevention and Control.<sup>6</sup>
- ⦿ Environmental Silica Dust Exposure and Pulmonary Tuberculosis in Johannesburg, South Africa.<sup>7</sup>
- ⦿ Tuberculosis Mortality by Occupation in South Africa, 2011–2015.<sup>8</sup>

The NIOH aims to continue its work on assessing TB prevalence and risk factors in various high-risk sectors with the ultimate aim of providing guidance on decreasing and preventing exposure in the workplace.

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# BE AWARE OF MENTAL HEALTH SYMPTOMS

It is important to be aware of the symptoms of poor mental health in ourselves and others and get help.

- Mental health affects many people worldwide
- 300 million people suffer from anxiety
- 279 million suffer from depression
- Anxiety is the most common disorder



## MENTAL HEALTH SYMPTOMS



- Sleep problems
- Irritableness and anger
- Sadness
- Tiredness, lethargy
- Excessive worry
- Appetite problems
- Not connecting with others

- Heavy drinking, smoking or drug use (self-medicating)
- Thinking of hurting or killing yourself
- Feeling apathetic
- Physical symptoms with no apparent cause e.g. headaches and stomach pains

## WORK AND MENTAL HEALTH

- Your work and work environment can impact you positively and negatively.
- Job stress, work-life balance and job satisfaction are important in mental health.
- High work demands, long working hours, shift work, organisational change, lack of support and interpersonal conflict are risks for poor mental health.

**Interventions that work are:** a supportive organisational culture, improving pay, giving employees some flexibility and control over their work schedule, cutting back pointless bureaucratic procedures, reducing the length of meetings, improving staff rotas, and improving the quality of frontline managers have been shown to support employee wellness.

# RESEARCH PUBLICATIONS



## Release and health outcomes of exposure to chalk particles in classroom: a systematic literature review

**Author(s):** Mbazima, S.J., Moola, R., and Joseph, J.S.

**Source:** International Journal of Environmental Health Research <https://doi.org/10.1080/09603123.2024.2311228>

**Summary:** This systematic review explores the release and health outcomes of exposure to chalk particles in classrooms. A literature search was conducted on Scopus, Google Scholar, and the Web of Science. Chalk particles contribute significantly to poor indoor air quality in classrooms. Higher concentrations of particulate matter (PM) 2.5 chalk particles were found in the front row and near the chalkboard. Breathing in unhealthy levels of PM2.5 can increase the risk of health problems like heart disease, asthma, and low birth weight. Inhalation and dermal are significant exposure routes; hence, teachers and learners are at risk of developing respiratory and skin disorders. Inhalation of chalk particles correlates with reduced lung function in teachers and learners. The release and size of chalk particles depend on the activities, type of chalk sticks, and texture of the chalkboards. Wiping the chalkboard releases more chalk particles of smaller size than writing. A shift from chalk sticks and chalkboards in classrooms is necessary to mitigate the associated health risks.



## Benefit sharing in international collaborative health research: The context of South African biobanks

**Author(s):** Maseme, M

**Source:** Afr.J.Bio.Sc. 6(2) (2024) 61-73 <https://www.afjbs.com/issue-content/benefit-sharing-in-international-collaborative-health-research-the-context-of-south-african-biobanks-216>

**Summary:** This paper discusses problems that have not yet been solved when it comes to the sharing of research benefits. There are different ideas on how sharing of research benefits should be done and this means that a common ground on how this should be done is needed. It is therefore necessary to investigate if there are enough materials for carrying out research in South Africa. This information will help in making decisions on what benefits of research should be shared when human samples are shared by South African researchers with overseas researchers. The topic of how sharing of benefits when South African human samples are shared with researchers outside the country has not been discussed fully in South Africa. This is why it is important to know how this has been done in other places. Everyone involved in the research, including community members and researchers, should benefit from the research. These benefits should include strengthening the research ability of local researchers, providing support for research materials and buildings, as well as benefits for communities that are taking part without using human samples in a way that is wrong.





### The non-use of aluminum oxide for silicosis prophylaxis in South African mines

**Author(s):** Rees, D., Nelson, G.

**Source:** Occup Health Southern Afr.2024; 30(1):18-21. <https://doi.org/10.62380/ohsa.2024.30.1.2>

**Summary:** Aluminum powder, also known as McIntyre powder, was used in many parts of the world as a silicosis prophylactic from 1943 to 1979. Many thousands of workers – gold miners particularly – inhaled the powder from 1943 to 1979. Despite claims that it reduced disease and its attendant costs, it was never adopted in South Africa; a sound decision, given the evidence of ineffectiveness and possible harm that accumulated after its introduction. There are several, sometimes interrelated reasons for the non-use of aluminium powder in South Africa. We postulate that the influential role of the PRU (a precursor of the National Institute for Occupational Health - NIOH) and its staff, notably Prof Ian Webster, who publicly stated their reservations about its efficacy as a silicosis preventive treatment, was material in the decision. This demonstrates the potential positive role of national institutes for occupational health in developing evidence-based policies and practices.



### The knowns and unknowns of chemically induced lower respiratory tract microbiota dysbiosis and lung disease

**Author(s):** Utembe, W., and Kamng'ona, A.X.

**Source:** Environ. Sci. Proc. 2023, 27, 21. <https://doi.org/10.3390/ecas2023-1634>

**Summary:** Exposure to chemicals in many occupational and environmental settings have the capacity to disturb the beneficial microorganisms that reside in humans. However, due to the challenges of collecting samples of microorganisms from the lung (LM), much more is known about the microorganisms that reside in the gut (GM) than LM. The advent of methodologies that do not depend on growing bacteria in the laboratory has revealed the complex community of microbes harboured by the respiratory tract. It is now being recognized that LM can directly impact body immunity in a manner that can result in disease. Significant differences in microbial community composition and diversity have been shown between the LM of diseased lungs with those of healthy subjects. Studies have linked the disturbance of LM with human diseases such as Idiopathic Pulmonary Fibrosis, lung inflammation, chronic obstructive pulmonary disease (COPD), asthma, lung cancer. However, it is not known whether the disturbance of LM initiates/promotes disease or is merely a sign or biomarker of disease. Many chronic lung diseases often occur together with chronic diseases in human digestive system in what is termed as the gut-lung axis. The LM also affects the central nervous system through a number of potential mechanisms that can include direct translocation of microorganisms. This paper analyses the evidence of how disturbance of LM by chemicals plays a significant part in human diseases, as has been shown for some air pollutants, cigarette smoking and the use of some chemical antibiotics.





### Immunotoxicity of engineered nanomaterials and their role in asthma

**Author(s):** Utembe, W., Andraos, C., Gulumian, M.

**Source:** Critical Reviews in Toxicology (07 Nov 2023). <https://doi.org/10.1080/10408444.2023.2270519>

**Summary:** Scientists have been studying the potential health effects of very tiny man-made materials called engineered nanomaterials. Most research has focused on how these materials can generally harm our bodies, but there's less known about how they specifically impact the complex system that defends us from germs, the immune system. This study takes a closer look at how these materials might influence allergic asthma, a condition where the immune system overreacts to certain triggers. The study explores two possibilities: either these materials could weaken or worsen allergic asthma or they could potentially be used to deliver medication more effectively, improving treatment. The research also highlights areas where scientists need to conduct more investigations. For instance, they need to improve the ways they test these materials' effects on the immune system. Additionally, the study points out how different factors, like the specific properties of the material or how it is administered to people, can influence the results of these tests. By accounting for these factors and refining testing methods, scientists can get a clearer picture of how engineered nanomaterials truly affect our immune system and allergic asthma.



### Radon exposure risks among residents proximal to gold mine tailings in Gauteng Province, South Africa: a cross-sectional preliminary study protocol.

**Author(s):** Mphaga, K.V., Utembe W., Rathebe, P.C.

**Source:** Front. Public Health 12:1328955. doi: 10.3389/fpubh.2024.1328955

**Summary:** Gold mine solid waste (tailings) harbours significant amount of radon gas, a classified human cancer causing agent. Radon exposure, especially near tailings, can result in increased risk of lung cancer, leukemia, and chronic obstructive pulmonary disease (COPD). This ongoing research aims to evaluating the relationship between indoor radon exposure and lung cancer, leukemia, and COPD risks among people who live near gold mine tailings in Gauteng Province, South Africa. This cross-sectional preliminary study focus on two distinct groups: Riverlea (exposed group, <2 km to Gold mine tailings) and Orlando East (unexposed group, >2 km to Gold mine tailings). Indoor radon levels will be measured using AlphaE monitors, while health risks (lung cancer, leukemia, and COPD) linked to exposure are evaluated through interview-administered questionnaire and secondary data from Gauteng Health Department. Of the 476 residents randomly selected for this study, 300 have already participated, with balanced representation from both the exposed and unexposed groups. The study will compare indoor radon levels and health outcomes between the two groups. This study's results could aid in creating targeted interventions and policies to mitigate indoor radon exposure risks and safeguard vulnerable communities from this significant public health hazard.



## Prevalence of chronic respiratory symptoms among cement factory workers in Gauteng Province, South Africa

**Author(s):** Mkulisi, A., Rathebe, P.C., Kachingwe, E., Bidassey-Manilal, S.

**Source:** Journal of Occupational and Environmental Hygiene, 21(3), 202–211. <https://doi.org/10.1080/15459624.2024.2324601>

**Summary:** Cement workers are exposed to various occupational hazards, dust being the most hazardous. Despite certain exposure limits on the emission of air pollutants in place, several people die each year due to complications from respiratory disease. This study aimed to assess the prevalence of chronic respiratory symptoms among workers exposed to cement dust. A quantitative, descriptive cross-sectional design was employed among 81 workers from two cement production companies in Gauteng, South Africa in 2018. A self-administered questionnaire, anthropometric measurements, and a spirometry test were used as data collection tools.

Data were analysed using Wilcoxon rank sum, binary logistic regression, Pearson's chi-squared, and Fischer's exact tests. Respiratory symptoms such as wheezing, recurring blocked nose, sneezing/stuffy nose, fatigue/tiredness, rapid breathing, soreness/watery eyes, and breathlessness were significantly prevalent among participants from both facilities. Engineering and housekeeping control measures such as the use of High-Efficiency Particulate Air (HEPA) vacuums to clean up dust and the proper use of Personal Protective Equipment (PPE) where workers are exposed to dust particles should be implemented.





## SAFE GUARDING YOUR WORKPLACE FROM INFECTIOUS DISEASES

Infectious agents may be associated with a workplace and specific work activity, resulting in an occupational infection, the table below lists some of the worker groups and associated infections.

Worker Group	Occupational Infections/Infectious Agent
Health-care workers	HIV, Hepatitis B, tuberculosis, SARS, Viral haemorrhagic fevers
Veterinarians and farm workers	Zoonoses including cryptosporidiosis, leptospirosis, salmonella infections, Q fever, rabies, anthrax, schistosomiasis
Abattoir workers	Nipah virus, Streptococcus suis, trichinosis, Q fever
Sex workers	Sexually transmitted infections
Forest rangers, forestry workers	Lyme disease, rabies, plague
Construction workers, demolition workers	Histoplasmosis
Miners, sandblasters, grinders, stonecutters, quarry workers, ceramic and foundry workers	Silicotuberculosis
Rice farmers	Melioidosis, "sawah itch"
Military personnel	Biological warfare agents including smallpox, anthrax and plague

\*Adapted from Behrman 2011<sup>2</sup>

The workplace should provide comprehensive health education programmes on risk of exposure and common routes of transmission. In addition, an effective occupational surveillance for prioritized workplace infections should be in place.

### Recommendation

"Early identification of infectious agents and risk assessment are key to preventing the spread of infectious diseases in the workplace"

<sup>1</sup> Aw TC, Blair I. Occupational infections. Infectious Diseases. 2010:715.

<sup>2</sup> Behrman AJ. Occupational infections. Occupational Emergency Medicine. 2011 Feb 11:46-74.



# FEATURES AND NEWS

## Beyond awareness and treatment: tuberculosis survivors and the workplace

By Dr Kerry Wilson



**A**n estimated 10.6 million people globally were diagnosed with tuberculosis, with 1.3 million deaths in 2022, according to the WHO Global Tuberculosis Report 2023.<sup>1</sup> In a modelling exercise by Dodd et al., 2020, it was estimated that there were 155 million global tuberculosis survivors, with over 25 million in Africa in 2020. Tuberculosis survivors often transition from acute symptoms to dealing with chronic disease or side effects of the treatment. The survivors have an increased risk of recurrent tuberculosis and are at higher risk of mortality than the general population.<sup>3</sup> These risks don't include the socioeconomic and

psychological complications from tuberculosis and its treatment. The burden of disease in tuberculosis survivors has not been clearly determined, with a lack of information and research in low and middle-income countries.

The Dodd study estimates the median age of survivors at 45 years and 60% were male.<sup>2</sup> This suggests several tuberculosis survivors may be found in most workplaces. Considerations or work accommodations may be required to protect and allow these workers to be productive in the workplace. In the case of occupational tuberculosis, workers may need support to return to work or rehabilitation. Accommodations may also be required to ensure

non-discrimination as considered in the Basic Conditions of Employment Act. Most workplace tuberculosis programs focus on early diagnosis of tuberculosis and support during treatment, but there is little information on supporting tuberculosis survivors.

**M**ost individuals diagnosed with tuberculosis may return to work after two weeks, when they are no longer infectious, but will remain on treatment for months after. Where multi-drug resistance is identified or suspected, an employee should not return to work until they can show culture conversion of their sputum. Social support and work accommodation may be required during this period. Those who are successfully cured may develop chronic respiratory conditions or side effects from treatment. Return to work with chronic disease policies and programs are required to ensure the successful re-integration of the employee into the workplace and protect the employees' health and safety along with support to ensure conditions encourage productivity.



Workplace options and guidelines are required for workers returning to work during and after tuberculosis treatment.



Workplace options and guidelines are required for workers returning to work during and after tuberculosis treatment. The guidelines should include standard tuberculosis prevention recommendations and specific or increased prevention measures where required. These may include environmental controls; such as ensuring adequate ventilation,

cough hygiene for employees and visitors, and use of ultraviolet-light air disinfection in high-risk areas. Awareness campaigns should be included to reduce the stigma of tuberculosis in the workplace and ensure the active screening of high-risk groups to increase early tuberculosis diagnosis and reduce the risk of recurrent infection in tuberculosis survivors.

Other requirements include actions to maintain confidentiality, limit discrimination, define the length of time for medical treatment and provide access to support mechanisms during sick leave along with insurance to cover extended sick leave. Guidelines should consider the requirement for psychological support during and after tuberculosis treatment and job modification where necessary.<sup>4</sup> Job modification and work accommodation are limited in research,<sup>5</sup> but reasonable changes may protect employees and their employers while supporting the continued productivity of employees.

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## ASBESTOS IN THE WORKPLACE



The Global Asbestos Awareness Week, which aims to raise awareness and profile of asbestos risks and hazards, runs from 1-7 April every year. **Vuyo Sabani** spoke to **Gabriel Mizan** (pictured), an occupational hygienist in the Occupational Hygiene Section, who sheds light on asbestos effects.

### **Vuyo Sabani: What is Asbestos?**

Gabriel Mizan: Asbestos is a naturally occurring fibrous material that is extensively used in building materials due to its excellent fire protection and thermal insulation properties. Despite its excellent properties, asbestos once termed the “magic mineral”, is also a serious health hazard. South Africa is the only country in the world where all three types of commercial asbestos, namely Chrysotile (“white asbestos”), Crocidolite (“blue asbestos”) and Amosite (“brown asbestos”), were mined and processed as early as 1893, when the first asbestos mine was opened in the Northern Cape, till 2002, when the last asbestos mine was closed.

### **Vuyo Sabani: When was asbestos banned in South Africa?**

Gabriel Mizan: Asbestos was officially banned in South Africa in 2008, more than forty years after researchers in this country clearly demonstrated the direct link between mesothelioma; a malignant and invariably fatal cancer affecting the pleura (lining) of the lung, and crocidolite asbestos exposure. Although asbestos has been banned in South Africa, as in 69 other countries, the legacy of this silent killer is still threatening lives, lurking in various shapes and forms, both in the home and at work, environment as well as the general surroundings.

### **Vuyo Sabani: What is the danger related to asbestos?**

Gabriel Mizan: Asbestos has been linked with various types of cancer and according to the global burden of disease statistics in 2016, it was responsible for the largest number of deaths due to occupational carcinogens (63%), including lung cancer (181 450 deaths), larynx (3743) ovarian (6022) and mesothelioma (27 612), a particularly aggressive and fast progressing cancer of the lining

(pleura) of the lung. What is important to remember about asbestos is that it can have a very long latency period, which means that the fibres can stay dormant in the lung, with no apparent symptoms for many years (typically 20 – 40 years), before the disease manifests with symptoms such as cough, shortness of breath, chest pain, respiratory failure and death. When symptoms manifest, it is often too late in the disease prognosis to be able to save the patient’s life. Statistics related to asbestos deaths in South Africa are scant, possibly due to underreporting and the long latency period between exposure and disease.

### **Vuyo Sabani: Where do I find asbestos and how can I get exposed to it?**

Gabriel Mizan: In South Africa, asbestos can be found in any building that was built before the banning of asbestos in this country (2008) and possibly even two to three years after the ban, as it took some time for the ban to come into effect. Typical products that may contain asbestos in the home and work environment include asbestos-cement roofs, gutters, ceilings, insulation boards, vinyl flooring tiles, fire blankets, heaters, pipe and electrical insulation material, boilers, and many more. Asbestos exposure may also occur in the environment, near building demolition sites, waste dumps and old asbestos mines.

### **Vuyo Sabani: How do I protect myself against asbestos exposure?**

Gabriel Mizan: Asbestos fibres are widespread in the environment and it is well established that each of us is exposed to these fibres (as to other harmful air pollutants) daily. However, the risk of getting an asbestos-related disease is determined by the degree of exposure. The higher the exposure, the higher the risk.



Continues from page 14...

Before getting involved in any work or task that we suspect might result in the release of asbestos fibres, a risk assessment needs to be done. The first question is, can this work or task be avoided? If not, the next question is, can this work be done by a registered asbestos contractor trained in working safely with asbestos? If work on an ACM must be done, the necessary precautions should be taken. These include taking steps to minimise generating dust that contains fibres, for example, by wetting the material beforehand. Avoid using electric / power tools that liberate large amounts of dust into the air. Use proper, well-fitted respiratory protection, such as a half-mask respirator with a particulate filter cartridge or an approved dust mask rated as FFP3. The use of gloves and disposable overalls is also highly recommended. If there is uncertainty regarding whether a material contains asbestos, a laboratory test can be performed at the NIOH to confirm if a bulk sample from the suspected material contains asbestos fibres.

### **Vuyo Sabani: What are the legal requirements regarding asbestos?**

Gabriel Mizan: The Asbestos Abatement Regulations, 2020 require the employer to identify, label and keep an inventory of all asbestos-containing materials (ACMs) on their premises. The inventory should include information regarding the nature and location of the ACMs and their quantity and condition. A risk assessment should be conducted to assess the potential health risk posed by any ACM to any person in the workplace, including details on the control measures required to eliminate or mitigate this risk. The risk assessment and inventory should be reviewed and updated by the employer at least once every 24 months. These processes and inventories must also be reviewed and endorsed by a Department of Employment and Labour Approved Inspection Authority (AIA) at least once every six years. Any workplace where ACMs are identified must have an asbestos management plan prepared by a competent person.

The Occupational Hygiene (OH) Section of the NIOH is a Department of Employment and Labour Approved Inspection Authority (AIA) for asbestos

and a SANAS accredited Inspection Body under the SANS 17020:2012 standard. This means the Section has the capacity and expertise to conduct asbestos surveys in the workplace and monitor and analyse occupational air samples for asbestos fibres. For more information, please contact:

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## **NIOH ASBESTOS TESTING SERVICES**

The NIOH Pathology Department provides a specialised service to the public and private sectors to test for the presence of asbestos in various samples through the Electron Microscopy (EM) Unit. Materials suspected of containing this hazardous fibre/s are analysed and confirmed using the Scanning Electron Microscopy-Energy Dispersive Spectrophotometry (SEM/EDS). With this test, asbestos fibres are identified and differentiated by type/s. Any material suspected to contain asbestos can be tested, including but not limited to cement, fascia boards, powders, paints, roof tiles, tiles, air filters, etc. The EM Unit also conducts asbestos research and training in collaboration with universities, the NHLS and other divisions within the NIOH. Furthermore, the Pathology Department also examines the cardio-respiratory organs of deceased mine workers for compensation as per the Occupational Diseases in Mines and Works Act, 1973 (Act 78 of 1973). The EM division assists by qualifying and quantifying asbestos fibres within lung tissue. For more information pertaining to the services provided by the EM Unit and request of quotation/s for analysis, please contact:

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# SERVICE DELIVERY

By Zandile Hoyi

The NIOH fields a multidisciplinary team of experts dedicated to promoting healthy and safe working environments in the workplace in South Africa, the African region and globally. With specialities ranging from occupational medicine and epidemiology to workplace policies and programs, NIOH's staff provide a comprehensive suite of services to employers, workers, government agencies and other stakeholders. In this issue, **Zandile Hoyi** puts the spotlight on NIOH's HIV TB in the Workplace Unit and its wide array of offerings aimed at addressing the occupational health threats, particularly those posed by HIV and TB.

**T**he International Labour Organisation (ILO) acknowledges the Human Immunodeficiency Virus (HIV) pandemic as one of the most critical workplace issues of our time. Similarly, Tuberculosis (TB) is one of the world's leading causes of illness and death globally, with approximately two million people succumbing to the disease annually. In areas with a high prevalence of HIV, workers are susceptible to TB, which furthermore translates into disruptions in productivity and the loss of skills and expertise for prolonged periods. The macroeconomic impact of TB reflects the cumulative loss of individual income and business losses, with an estimated productivity loss of 12 billion USD per year.

The NIOH's HIV TB in the Workplace Unit provides assistance to various workplaces, including the government, in the establishment of occupational policies, systems and programmes and their implementation through conducting research, teaching and training, and providing additional advisory support. The unit uses HIV and TB as an entry point to workplace health and safety programmes and has had projects for health workers, mineworkers, construction workers, municipal workers, informal economy workers and agricultural workers.

## Partners

The main partners with which the Unit collaborates include:

- ⦿ Government at all levels, such as the Department of Health, Department of Employment and Labour, Department of Mineral Resources and Energy, Department of Basic Education, Department of Public Service and Administration and the City of Tshwane Municipality.
- ⦿ International Labour Organisation and the World Health Organisation
- ⦿ Mineral Council of South Africa
- ⦿ Mine Health and Safety Council
- ⦿ Master Builders South Africa
- ⦿ Trade unions including (NUM, NUMSA, HOSPERSA, NEHAWU, etc.)
- ⦿ Institutions of higher learning, international and national.

## Consultative services

- ⦿ In summary, the unit seeks to provide workplaces with practical, participatory and cost-effective tools to improve work conditions, performance, and quality occupational health and safety for workers.

## For all its stakeholders, the Unit offers:

- ⦿ Research services
- ⦿ Education and training
- ⦿ Advisory services

In occupational health policy, systems, programmes and services, especially HIV and TB to highlight the above.

### Additional services

The Unit members are part of the faculty staff at the University of Pretoria's School of Health Systems and Public Health, where they coordinate the Diploma in Occupational Medicine and Health programme and teach and supervise post-graduate students in public health, environmental health and occupational health.

For more information, please inquire with one of the contacts below:

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HIV and TB in the workplace Unit staff with Musina Health District mobile service and Centre for Positive Care employees at Hayoma farm in Limpopo province for World TB Day.



# TEACHING AND TRAINING

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 spoke to the NIOH's Immunology and Microbiology Section about the **"Bio-risk management workshop training on biohazard risks in workplaces,"** which will be held in the second quarter of the year.

## 1. What is this training about?

The training provides a framework for determining effective and appropriate occupational health strategies in workplaces with potential exposure to hazardous biological agents. This interactive course is designed to enhance participants' knowledge and skills in identifying the risk of hazardous biological agents in the workplace. The focus will be on preventing transmission and protecting workers from exposure. The course will consist of online lectures, practical demonstrations, case studies, problem-solving, and current best practices to prevent and control biological exposure in various work settings. Participants will have the opportunity to be hands-on and apply the Assessment, Mitigation and Performance (AMP) principle to identify and control the biosafety and biosecurity risks in the workplace and nearby communities. The course is intended to increase the competency-based BioRisk Management in South Africa. Participants will be empowered with the skills, tools, and confidence to advise and guide on sustainable BioRisk management that will ultimately reduce the threat of disease in the workplace.

## 2. Who is this training targeting?

Health and Safety officers, risk control officers and assistants, occupational health and safety professionals, safety managers, and infection prevention control managers.

## 3. Does the training have CPD points?

Yes. HPCSA – 30 CPDs and SAIOH – 2.5 CPD

## 4. How do I enrol?

Complete an online application form or get the application form from the NIOH Training Section ([ashrafr@nioh.ac.za](mailto:ashrafr@nioh.ac.za)).

## 5. Is this training online or in person?

Online for theory (3 days) and 1 day in-person for practicals, and 1 day (site visit for Risk assessment).

## 6. What is the duration of the course?

Five-day course.

## 7. Who are the trainers

Trainers are experts in biological risk management and will include both NIOH and external stakeholders who will cover topics such as identification, monitoring, prevention, clinical manifestations and legislative requirements of biological risk in the workplace.

## 8. What are the cost implications?

Please contact Ms Dikeledi Matuka ([dikeledim@nioh.ac.za](mailto:dikeledim@nioh.ac.za))

## 9. Contact details for further enquiries?

Ms Dikeledi Matuka ([dikeledim@nioh.ac.za](mailto:dikeledim@nioh.ac.za))





## Recharge, refocus, reunite workers with occupational leave of absence following infectious diseases including COVID-19

An infectious disease, such as TB or COVID-19, that arises out of and is contracted in the course of your work, is an occupational disease with possible compensation leave and additional benefits.

If you think you have contracted an infectious disease at work, consult your occupational health department who will confirm with a risk assessment and hazardous biological agents regulations.

Did you know that when you get an infectious disease as a result of your work you qualify for compensation leave and additional benefits under the Compensation for Occupational Injuries and Diseases Act 130 of 1993 (COIDA)?

However, if the infection is not caused by your work, your sick leave and other benefits will be in terms of the Basic Conditions of Employment Act 75 of 1997. Consult your human resources (HR) department and occupational health department regarding your leave of absence entitlements when you have an infectious disease.

# NIOH SERVICES

The NIOH provides various services. In this issue, we share services from five different sections. For comprehensive list of services, please visit the NIOH website: <https://www.nioh.ac.za/>

Section	Services	Contact person
<b>Analytical Services</b>	Analytical Services makes available to a wide range of users analytical services in occupational hygiene, biological monitoring, and some clinical laboratory tests.	<p>Head of Section Dr Boitumelo Kgarebe Tel: +27(0)11-712-6410 E-mail: boitumelok@nioh.ac.za</p> <p>Organics Laboratory Dr Puleng Matatiele Tel: +27(0)11-712-6477 E-mail: pulengm@nioh.ac.za</p> <p>Metals Laboratory Mr Poobalan Poongavanum Tel: +27(0)11-712-6414 E-mail: poobalanp@nioh.ac.za</p>
<b>Immunology &amp; Microbiology</b>	<p><b>Bioaerosols laboratory</b> Bio-risk management workshop to different professionals in the workplaces</p> <p><b>Waterborne Pathogen laboratory</b> Waterborne pathogens and the world of work to facility managers, EHPs, wastewater treatment plant workers, laboratory staff, plumbing &amp; maintenance staff, researchers, academics</p> <p><b>Occupational Allergy laboratory and Clinic</b> Occupational allergy workshop to occupational nurses doctors etc.</p>	<p>Ms Onnicah Matuka Tel: 011 712 6487 Email: dikeledim@nioh.ac.za</p> <p>Dr Noncy Gomba Tel: 011 712 6404 Email: noncyg@nioh.ac.za</p> <p>Ms Anna Fourie Tel: 011 712 6538 Email: annaf@nioh.ac.za</p>
<b>Information Services and Training</b>	<p><b>Archive</b> Documenting and preserving the institutional memory and create access points to the rare and unique information resources showcasing how the institute has evolved over time. These records stretch as far as 1912, they include personal papers, conference papers, registers, obsolete instruments, photographs etc.</p> <p><b>Institutional Repository</b> Collect and capture research output of NIOH, NICD into an institutional repository called Dspace, which complies with the Open Archives Initiatives (OAI).</p> <p><b>Digitisation</b> Digitisation of analogue (physical collection) to electronic copies for preservation into the repository for easy and wide access.</p>	<p>Mr Simphiwe Yako Tel: 011 712 6518 Email: simphiwey@nioh.ac.za</p> <p>Mr Lwando Matomane Tel: 011 489 9301 Email: lwandom@nioh.ac.za</p>



Section	Services	Contact person
	<p><b>Library</b> The Section offers training on research management services to both internal and external stakeholders. Additionally, the section provides support through research article requests, book searches, etc.</p> <p><b>Cataloguing</b> Creating and maintaining bibliographic and authority records in the library catalogue. Create database of books, serials, monographs and enhance E-resources for easy access.</p> <p><b>Query handling</b> Facilitating Advisory Service (Responding to technical Occupational Health queries or liaising with OH specialists within NIOH to assist), Coordination of NIOH Research Projects, coordination and dissemination of scientific publications.</p> <p><b>Training</b> Coordination of training activities within NIOH.</p>	<p>Ms Ntombi Ndubandubane-Manunga Tel: 011 712 6596 Email: NtomboxoloN@nioh.ac.za Email: lwandom@nioh.ac.za</p> <p>Ms Suzan Mothiba Tel: 011 712 6518 Email: suzanm@nioh.ac.za</p> <p>Ms Babalwa Jekwa Tel: 011 712 6417 Email: babalwaj@nioh.ac.za</p> <p>Mr Ashraf Ryklief Tel:011 712 6513 Email: ashrafr@nioh.ac.za</p>
<p><b>Pathology Division</b></p>	<p><b>Training laboratory technical staff:</b> The laboratory performs practical training of technical laboratory staff enrolled as medical laboratory scientists, and laboratory technologists in the histopathology discipline.</p> <p><b>Training medical intern scientists:</b> The laboratory is accredited to train medical intern scientists as part of their two year internship programme in the histopathology discipline.</p> <p>Training of histopathology registrars from the department of Anatomical Pathology at the University of Witwatersrand: The Division is responsible for the teaching and training of registrars, who rotate through the department for three months at a time.</p> <p><b>Surgical pathology diagnostic service</b> A routine surgical histopathology diagnostic service, with a focus on cardiothoracic/pulmonary pathology. A consultative service for challenging pulmonary pathology cases is also offered.</p>	<p>Ms Sharlene Naidoo Tel: 011 712 6595 Email: sharlenen@nioh.ac.za</p> <p>Dr Deepna Lakhoo Tel: 011 712 6409 Email: deepnal@nioh.ac.za</p> <p>Ms Busisiwe Mkhonza Tel: 011 712 6519 Email: busisiwemk@nioh.ac.za</p>

Section	Services	Contact person
	<p><b>Immunohistochemistry</b> As part of the routine histopathology service, a wide range immunoperoxidase tests are available to external laboratories requiring this service.</p> <p><b>Autopsy services aligned to the Occupational Diseases in Mines and Works Act (1973).</b> The Pathology Division carries out the statutory requirement of examining the cardiorespiratory organs of deceased miners. A pathology report of this examination is sent to the Medical Bureau for Occupational Diseases to assist with the compensation process for families of deceased mine workers.</p> <p><b>Electron Microscopy</b> This Section carries out qualitative analyses for the presence of asbestos fibres in bulk materials and air samples, obtained from filters. The Section also supplements the service work of the Autopsy Pathology division by determining the asbestos fibre concentrations in lung tissue to assist with diagnoses of asbestos-related disease.</p>	<p>Ms Sharlene Naidoo Tel: 011 712 6595 Email: sharlenen@nioh.ac.za</p> <p>Ms Palesa Mazibuko Tel: 011 712 6444 Email: palesam@nioh.ac.za</p> <p>Ms Zethembiso Ngcobo Tel: 011 712 6465 Email: zethembison@nioh.ac.za</p>
<p><b>Toxicology and Biochemistry</b></p>	<p><b>United Nations Globally Harmonised System of Classification and Labelling of Chemicals (UNGHS)</b></p> <p>The Toxicology Department facilitates the UNGHS workshop to train individuals who handle hazardous chemicals in their workplaces in the identification and management of chemical hazards according to GHS classification criteria.</p>	<p>Dr Wells Utembe Tel 0117126741 Email: wellsu@nioh.ac.za</p>



NATIONAL INSTITUTE FOR  
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