NATIONAL INSTITUTE FOR OCCUPATIONAL HEALTH
Division of the National Health Laboratory Service

OCCUZONE

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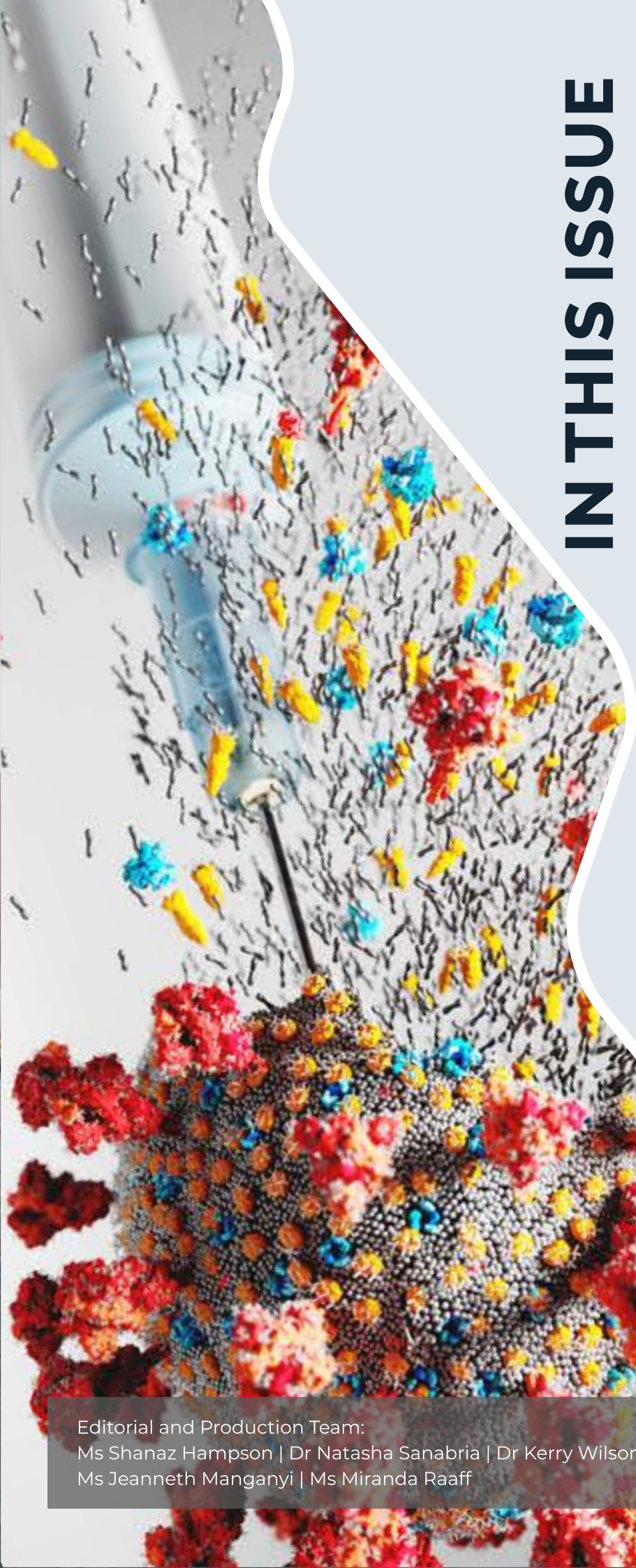
"By working together, pooling our resources and building our strengths, we can accomplish great things"

Ronald Raegan



IN THIS ISSUE

Editorial and Production Team:
Ms Shanaz Hampson | Dr Natasha Sanabria | Dr Kerry Wilson | Ms Jeanneth Manganyi | Ms Miranda Raaff

MESSAGE FROM THE EDITOR

It is undeniable that the pandemic has transformed our lives and the way we interact and engage with one another. The traditional world of work has also transmuted significantly during this time. For the first time in more than two years since the first case of COVID-19 was identified in our beloved Mzansi, we are finally finding the courage to dream again instead of focusing on surviving each day. The recent lifting of the State of Disaster by our President, coupled with a sustained effort by government to increase the momentum of vaccine uptake amongst fellow citizens, has allowed for a feeling of hope to prevail as we look forward to the future and what our new state of normal will be.

In this COVID-19 special edition of OccuZone we reflect on the Institute's collective response to the pandemic and share with you the various activities the institute carried out since March 2020 to date, some of which were collaborative efforts with various stakeholders. In this edition, we outline our COVID-19 research activities and current projects underway. We also showcase the scientific publications produced by our researchers during the past quarter and profile one of our emerging researchers, a Medical Scientist working in the NIOH's Immunology and Microbiology Section. As part of surveillance of occupational exposures and health outcomes, which is an essential function of the NIOH, this edition looks at the Occupational Health Surveillance System (OHSS) COVID-19 data for South African workplaces (1 October 2020 to 31 October 2021). In addition, we highlight the advisory support that the Institute provided throughout the pandemic, in terms of specialized service delivery. Lastly, we detail the COVID-19 training conducted for various industries, since the pandemic started.

I would like to take this opportunity to acknowledge and thank all of you - our stakeholders, partners and colleagues in OHS – for your solidarity and the significant contribution and support provided to NIOH. May we continue to work together to address the various occupational health challenges related to the pandemic and strengthen our collective outbreak response to protect the health and safety of workers across South Africa, SADC and the continent at large.

In conclusion, I would like to thank our newsletter editorial team for their valuabletime and expertise in producing and maintaining this high quality publication. I would also like to thank the authors for their valuable contribution to the newsletter.

As the season changes and the leaves turn vivid hues of orange and yellow, floral scents are replaced by woody-spicy aroma's and glorious shafts of golden light spill through window panes - reminding us of the beauty that surrounds us each day and the profound power and reverberation that is nature. We hope you enjoy the read!

Ms Shanaz Hampson

NEWSLETTER

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MESSAGE FROM THE RESEARCH COMMITTEE CHAIR

The COVID-19 pandemic is the focus of this edition due to the striking loss of human lives worldwide, which presents an unprecedented challenge to public health, as well as the world of work. The NIOH has served South African workers during this difficult time and played an important role in the adoption of measures and initiatives for the management of the pandemic emergency at the workplace. Some of the research activities have included COVID-19 specific studies, as highlighted in the Research Focus section herein. Additional studies to be implemented include:

- Evaluation of the Occupational Health Surveillance System for monitoring COVID-19
- COVID-19 surveillance in a Health Care Workers
- Mental health in Health Care Workers during the COVID-19 pandemic
- Occupational health risk assessment of COVID-19 mobile screening and testing labs
- Autopsy of deceased miners with COVID-19 related complications

What is of note and special interest for all health care workers, is the impact that the NIOH-based "OHASIS" occupational health information programme has had on identifying those workers in need of assistance via a module dedicated to daily COVID-19 screening, as highlighted in the previous edition (https://www.nioh.ac.za/ohasis/). OHASIS is a web-based programme with the ability to control access to information of a confidential nature, and where rollout has taken place within the NHLS, Gauteng Department of Health and the Namibian Institute for Pathology. However, OHASIS has the potential for focused research activities that will be highlighted in an upcoming survey to be conducted.

In the international arena, it is interesting to see that the President of the International Commission on Occupational Health (ICOH), highlighted how COVID-19 is far from being under control, neither at work nor globally. He linked this to the fact that vaccinations have progressed in many developed countries, however much of the workforce in the rest of the world is without a single inoculation. He concluded that governments, authorities, and workplaces should multiply their efforts to enable access to vaccinations for all. An ICOH infographic included COVID-19 deaths as a communicable disease within the global estimate of work-related mortality, which sensitizes one to that fact that viral infections may contribute to occupational hazards http://www.icohweb.org/site/pdf-viewer/viewer.asp?newsletter=icoh_newsletter_vol19_no3.pdf.

Usually, vaccine allocation is prioritised for those people at risk of developing severe disease due to underlying medical conditions, social status, demographical reasons, work-related exposures etc. However, the latest research also questions the place that genomics could have within COVID-19 vaccine allocation schemes, since host genomic factors may account for disease response variability in COVID-19 infection. In other words, why do some experience such varied and long-lasting symptoms? This again, is an important issue for ensuring a sustainable workforce. The NIOH intends to work with our International partners and conduct research that is relevant to these issues, with the goal to implement interventions that are easy to action and suitable for the unique needs in South Africa. So watch this space!

Dr Natasha Sanabria

This is a good opportunity to remind our Readers of the previous COVID-19 related research studies conducted at NIOH that were also recently published and are currently available in the public domain.

The NIOH participated in a study of Health worker protection during the COVID-19 pandemic in four provinces of South Africa (https://doi.org/10.1186/s12913-021-07077-w). Also, the National Covid-19 hospital admissions and mortality among healthcare workers in South Africa, between 2020-2021, were investigated (www.nicd.ac.za/wp-content/uploads/2021/07/COVID-19-Special-Public-Health-Surveillance-Bulletin-July-2021.pdf).

Another study conducted at NIOH focussed on taxi COVID-19 transmissibility, which was commissioned by the national DoH to assess the effectiveness of disinfection practices currently implemented in the taxi industry.

In the early stages of the COVID-19 pandemic, there had been uncertainty about the effectiveness of temperature-measuring devices. Thus, the NIOH contributed by producing a literature review of the use of temperature-screening and appropriate measurement devices for COVID-19. In addition, a document was produced from queries sourced via NIOH's query ticket system, i.e. "Outcome of the analysis of occupational medicine queries relating to COVID-19".

The NIOH also participated in a study to detect COVID-19 in wastewater and its implications for workers' health at wastewater treatment plants in Gauteng. The Researchers were also involved in validating decontamination methods for filtering face-piece Respirators as an alternative for stock shortages during emergencies. This is also highlighted in the Researcher Spotlight section herein.

In one study, NIOH Researchers investigated skin disorders associated with PPE used during COVID-19. Another research study investigated the role of telecommuting during COVID-19, which highlighted occupational health and safety policies and reasonable accommodation for workers working from home.

Research on the alcohol content of hand sanitisers was prioritised due to concerns about poor-quality hand sanitisers entering the market, putting many workers at risk. Specifically, a study was conducted to assess the quality of alcohol-based hand sanitizers, which are currently being used in the Johannesburg area during the COVID-19 pandemic (https://doi.org/10.1038/s41598-022-08117-z). It was relevant since the World Health Organization recommended that, in absence of soap and water, alcohol-based hand sanitizer can be used to prevent the transmission of coronaviruses.

Lastly, an occupational health and safety audit of health facilities in South Africa was conducted, where the findings were presented to the Director-General and Executive Committee of the national DoH. Recommendations on strengthening OHS were also made.

Title: HIV and TB Workplace Program for Street Vendors: A Situational Analysis

Author(s): N. Mlangeni, K. Du Preez, M. Mokone, M. Malotle, S. Kisting, J. Ramodike, M. Zungu

Source: NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy 1–10
https://doi.org/10.1177/10482911211069621

Abstract: In South Africa, 15 percent of informal economy workers are street vendors. The organization of occupational health services in the country, is fragmented and does not cover informal workers. Conditions of work make informal workers extremely vulnerable to human immunodeficiency **virus** (HIV) and tuberculosis (TB) exposure. In this study, a qualitative risk assessment was conducted among street vendors, followed by focus group discussions. Interpretation of data was according to major themes extracted from discussions. Workers are exposed to several occupational health hazards identified during the risk assessment. There is a lack of workplace HIV and TB services and overall poor access to healthcare. Street vendors, especially females, are at higher risk of HIV, due to gender inequalities. Comprehensive gender-sensitive training on occupational health and safety, HIV, and TB should be prioritized. To reach Universal Health Coverage and achieve the Sustainable Developmental Goals' targets, the health system should improve services for informal economy workers.

Keywords:
Occupational health and safety; HIV and TB workplace program; street vendors; informal workers; access to occupational health services; worker's health

Title: Exercise Increases the Expression of Glucose Transport and Lipid Metabolism Genes at Optimum Level Time Point 6h Post-Exercise in Rat Skeletal Muscle

Author(s): JS Joseph and OF Fagbohum

Source: Comparative Clinical Pathology (2022) 31;147–153
https://doi.org/10.1007/s00580-022-03318-4

Abstract: More than 90% of diabetes cases are type 2 diabetes characterized by persistent increase in glucose (hyperglycemia), lipid, and protein metabolic disorders that may induce insulin resistance. Individuals who suffer from type 2 diabetes are partly characterized by down-regulation of glucose transport and mitochondrial lipid oxidizing genes. Nuclear respiratory factor, (NRF)-1, is a mitochondrial transcriptional factor shown to be involved in glucose transport and acts as potential therapeutic modality in the management of T2DM. In this study, we accessed NRF-1 and its target gene expression crucial in glucose transport and lipid oxidation during exercise. Five- to 6-week-old male Wistar rats were exercised to identify the time-point for an optimum increase in the levels of NRF-1 and target genes. Gastrocnemius muscles were harvested after 0, 2, 4, 6, 8, 10, 12, and 15 h post-exercise and non-exercise rats. Primers were used to amplify the region of the genes; Nrf-1, glut 4, carnitine palmitoyltransferase, peroxisome proliferator-activated receptor gamma co-activator 1, mef2a, and acetyl-CoA carboxylase-1. Relative mRNA expression was normalized to the Actin reference gene. Cpt-1, Nrf-1, mef2a, glut4, cpt2, and Pgc-1 showed 2.5, 8, 1.2, 4.1, 4.6, 3.5-folds increase respectively after 8 h post-exercise compared with control, whereas Acc-1 showed a 3.1-fold decrease in gene expression ratio after 6 h post-exercise. Nrf-1 binding to cpt-1 and mef2a increased with 3 and 3.5-folds, respectively. Nrf-1 was increased by exercise with its binding to target genes which has huge implications in ameliorating type 2 diabetes and insulin resistance.

Keywords: Type 2 diabetes; NRF; Exercise; Glut4; Lipid oxidation; Glucose transport

Title: Work-Related Allergy and Asthma Associated with Cleaning Agents in Health Workers in Southern African Tertiary Hospitals

Author(s): HH Mwanga, R. Baatjies, **T. Singh,** MF Jeebhay
Source: American Journal of Industrial Medicine 2022;1–14
https://doi.org/10.1002/ajim.23344

Abstract: Health workers (HWs) are exposed to diverse cleaning agents in large hospitals. This study determined the prevalence of work-related symptoms, allergic sensitization, and lung function abnormalities in HWs of two tertiary hospitals in Southern Africa.

In terms of the methods, a cross-sectional study of 699 HWs (South Africa: SAH, n = 346; Tanzania: TAH, n = 353) was conducted. Health outcomes were assessed using a standardized ECRHS questionnaire, immunological tests (specific IgE antibody to common aero- allergens and to occupational allergens: natural rubber latex [NRL] Hev b5 and Hev b6.02, chlorhexidine, and ortho-phthalaldehyde [OPA]), spirometry [pre-and post- bronchodilator], methacholine challenge, and fractional exhaled nitric oxide (FeNO).

Results found that a large proportion of participants (78%) were women. Median age was 42 years, with 76% nurses, 12% cleaners, and 5% administrative workers. Current smoking was more common in SAHWs (12%) than TAHWs (1%). The overall prevalence of doctor-diagnosed asthma was 7%. Atopy was present in 43% of HWs, while 4% were sensitized to OPA, 2% to NRL, and 1% to chlorhexidine. Prevalence of work-related ocular-nasal symptoms (16%) was higher than skin (12%) and chest (7%) symptoms. TAHWs had significantly lower mean lung volumes, higher degrees of significant airflow obstruction and impaired lung function. The prevalence of bronchial hyperresponsiveness in SAHWs (14%) was high. Overall, 23% of HWs had abnormal FeNO; 6% having high (>50 ppb) levels. FeNO was positively associated with sensitization to occupational allergens, primarily OPA and NRL.

HWs from both hospitals had similar prevalence of work-related respiratory symptoms. Sensitization to OPA and NRL appears to be contributing to allergic airway inflammation in these HWs.

Keywords: Airway obstruction; allergy; cleaning agents; health workers; NSBH; work-related asthma

Title: A Systematic Review on the Effects of Nanomaterials on Gut Microbiota

Author(s):): W. Utembe,
N. Tlotleng, AW Kamng'ona
Source: Current Research in Microbial Sciences (2022), doi:
https://doi.org/10.1016/j.crmicr.2022.100118

Abstract: Some nanomaterials (NMs) have been shown to possess antimicrobial activity and cause GM dysbiosis. Since NMs are being used widely, a systematic assessment of the effects of NMs on GM is warranted. In this systematic review, a total of 46 in vivo and 22 in vitro studies were retrieved from databases and search engines including Science-Direct, Pubmed and Google scholar. Criteria for assessment of studies included use of in vitro or in vivo studies, characterization of NMs, use of single or multiple doses as well as consistency of results. GM dysbiosis has been studied most widely on TiO2, Ag, Zn-based NMs. There was moderate evidence for GM dysbiosis caused by Zn- and Cu-based NMs, Cu-loaded chitosan NPs and Ag NMs, and anatase TiO2 NPs, as well as low evidence for SWCNTs, nanocellulose, SiO2, Se, nanoplastics, CeO2, MoO3 and graphene-based NMs. Most studies indicate adverse effects of NMs towards GM. However, more work is required to elucidate the differences on the reported 3 effects of NM by type and sex of organisms, size, shape and surface properties of NMs as well as effects of exposure to mixtures of NMs. For consistency and better agreement among studies on GM dysbiosis, there is need for internationally agreed protocols on, inter alia, characterization of NMs, dosing (amounts, frequency and duration), use of sonication, test systems (both in vitro and in vivo), including oxygen levels for in vitro models.

Keywords: Nanomaterials; gut microbiota; dysbiosis; exposure; metabolic disease

Topic: Association between Bone Lead Concentration and Aggression in Youth from a Sub-Cohort of the Birth to Twenty Cohort

Author(s): N. Tlotleng;
N. Naicker, A. Mathee, AC Todd, P. Nkomo and SA Norris
Source: Int. J. Environ. Res. Public Health 2022, 19, 2200.
https://doi.org/10.3390/ijerph19042200

Abstract An association between blood-lead levels and aggression has been demonstrated in children and adolescent youth in South Africa. However, there are limited studies that have assessed aggression as an outcome for cumulative lead exposure using bone lead concentration. This study aims to assess the association between bone lead concentration and aggressive behaviour among a sample of youth in South Africa.

Bone lead in 100 participants (53 males and 47 females) recruited and followed in the Birth to Twenty (BT20) Cohort were measured using 109 Cd-based, K-shell X-ray fluorescence (KXRF). The Buss–Perry Aggression questionnaire was used to measure aggressive behaviour. Linear regression models were fitted to determine the association between aggression score for physical, verbal, anger and hostility and bone lead, adjusting for known confounders. Results found that a one-microgram-per-gram increase in bone lead was found to increase the score for all four scales of aggression, but significantly only for anger (β = 0.2 [95% CI 0.04–0.370]). Psychosocial factors such as a history of family violence and exposure to neighbourhood crime were significant predictors for aggression.

The study provides a preliminary overview of the relationship between cumulative lead exposure and behavioural problems such as aggression. A larger sample, across exposed communities, may prove more definitive in further investigating the association between these two important public health factors and to maximize generalizability.

Keywords: Bone lead; blood lead; aggression; BT20 cohort; KXRF; late adolescence; South Africa

Title: Challenges and Opportunities in Ensuring Ethical Research in Africa

Author(s): M. Maseme
Source: African Journal of Inter/Multidisciplinary Studies Volume 3 (2021a Special Issue), 74-85
https://doi.org/10.51415/ajims.v3i1.977

Abstract: The main ethical issues specific to the African continent research agenda relate to the vulnerability of African researchers, particularly as a result of inadequate resources, inadequate or lack of applicable legislation, and genetic variability of African populations that make samples from such populations most sought-after by researchers from other continents. This paper explores some of the ethical research challenges in Africa through an ethico-legal assessment of the literature and offers opportunities for addressing these challenges. The literature review findings revealed ethical dilemmas that include consent issues, cross-border transfer of samples and material transfer agreements, commodification of human material as well as benefit sharing. Based on these findings, opportunities for ethical research arise and these include benefit sharing such as researcher recognition and participating community study-related health benefits and well-defined agreements that consider appropriate specimen access and use. Significant changes in African research status quo are required to counter the effects of ethical research challenges, thereby ensuring sound ethical conduct and integrity in research. In addition to the noted opportunities, this paper also recommends monitoring of the fate of exported samples and proposes an ethical matrix that can be used by governments and institutions in addressing the highlighted research challenges in ethical decision making and policy intervention.

Keywords: Autonomy and trust; international collaborative research; human sample commercialisation; sample export; benefit sharing; ethical matrix

Title: Assessment of Quality of Alcohol Based Hand Sanitizers Used in Johannesburg Area During the COVID-19 Pandemic

Author(s): P. Matatiele, B. Southon, B. Dabula, T. Marageni, P. Poobalan, B. Kgarebe
Source: NScientific Reports (2022) 12:4231.
https://doi.org/10.1038/s41598-022-08117-z

Abstract: Since the outbreak of the Coronavirus Disease 2019 (COVID-19), the World Health Organization has recommended that, in absence of soap and water, alcohol-based hand sanitizer can be used to prevent the transmission of coronaviruses. Unfortunately, many media and anecdotal reports indicate that many alcohol-based hand sanitizers sold in South Africa are substandard and some contain potentially toxic ingredients. The study aimed to identify hand sanitizers used in the Johannesburg area during the COVID-19 pandemic that do not contain the recommended alcohol concentration of at least 70% propanol or 60% ethanol, and contain traces of toxic ingredients. Hand sanitizers randomly collected from various traders around Johannesburg were analyzed using Agilent auto sampler coupled to a gas chromatograph utilizing fame ionisation detection. Of the 94 hand sanitizer samples collected, three preparations contained no alcohol, whereas the rest contained either ethanol, 2-propanol or 1-propanol or a combination of two alcohols. Of the alcohol-containing hand sanitizers, 37 (41%) contained less than 60% alcohol. Ethyl acetate, isobutanol and other non-recommended alcohols (methanol and 3-methyl-butanol) were also identifed. Consumers are therefore warned that among the many brands of hand sanitizers found around Johannesburg, there are some substandard preparations and some that contain traces of toxic ingredients.

Keywords: Sanitizer; alcohols; chromatography; covid-19; toxic ingredients

Title: Occupational Rhinitis and Asthma Due to Lentil and Split Pea Allergy in a Food Handler

Author(s): Z. Sonday, S. Adams, **T. Singh**, E. Ratshikhopha, MF Jeebhay
Source: Current Allergy & Clinical Immunology I March 2022 I Vol 35, No 1
https://www.researchgate.net/publication/359107339

Abstract: A machine operator at a factory that packages raw forms of legumes and grains developed work-related ocular-nasal and asthma symptoms associated with exposure to legume dust at work. Despite earlier sensitisation, he developed ingestion-related symptoms to lentils much later, after tolerating exposure for years.

Work-related symptoms were evaluated clinically and by means of a walk-through inspection to ascertain the extent of exposure to legume dust. Respiratory function assessment entailed spirometry accompanied by a bronchodilator challenge and serial peak flow monitoring. Immunological evaluation included investigation for atopy using Phadiatop and skin-prick tests to common aeroallergens, specific IgE reactivity to potential workplace legume and grain food allergens as well as other potentially cross-reacting food agents. SDS-PAGE and immunoblot testing were used to determine the molecular weights of the putative allergen using food samples obtained from the factory and the serum of the index case.

Occupational asthma was confirmed based on the finding of airway reversibility and a positive work effect index score of 3.73 in the presence of sensitisation to different lentils and split peas. The molecular weights of potential allergens were identified as being a ~50 kDa protein (possibly Len C 1 and Pis s 1 respectively), one between 75–100 kDa and another of 25 kDa. There also appeared to be cross-sensitisation to other legumes, notably chickpea.

This rare case of occupational legume (lentil and split pea) allergy resulting in occupational rhinitis and asthma highlights the role of inhalant workplace food allergens and the need for improved workplace dust control measures and exposure standards in the food industry.

Keywords: Work-related asthma; occupational food-induced allergy; lentil allergy; split pea allergy; inhalation legume allergy

Title: An overview of the National Biobank of the National Health Laboratory Service: A South African national treasure for biological resources

Author(s): MS Thobela, MR Maseme and BM Duma
Source: J Lab Med 2022.
https://doi.org/10.1515/labmed-2021-0101

Abstract: The National Biobank of the National Health Laboratory Service (NHLS) is a national treasure established to serve as support infrastructure for the provision of high quality human biological materials for research purposes and it represents the first of its kind in South Africa. This article aims to demonstrate the alignment of the NHLS Biobank to international best practices and guidelines with reference to the 13 sections of the International Society of Biological and Environmental Repositories (ISBER) Best Practices for Repositories (4th ed.). The NHLS Biobank has implemented procedures and management strategies that are technical best practices covering the lifecycle of biobanking (collection, processing, storage and dissemination of human biological materials) while having respect for ethical and regulatory processes, upholding the interest of the donors. ISBER best practices are invaluable sources of guidance and benchmarking on the guiding principles has enabled the NHLS Biobank to develop into an entity with infrastructure and operational activities that support its short-term and long-term objectives that are set out in the business plan.

Keywords: Human biological materials; international best practices; National Biobank; quality management; research; South Africa

Title: The Utility of Length of Mining Service and Latency in Predicting Silicosis among Claimants to a Compensation Trust

Author(s): H. Williams,
R. Ehrlich, S. Barker, S. Kisting-Cairncross, **M. Zungu** and A. Yassi
Source: Int. J. Environ. Res. Public Health 2022, 19, 3562.
https://doi.org/10.3390/ijerph19063562

Abstract: In the wake of a large burden of silicosis and tuberculosis among ex-miners from the South African gold mining industry, several programmes have been engaged in examining and compensating those at risk of these diseases. Availability of a database from one such programme, the Q(h)ubeka Trust, provided an opportunity to examine the accuracy of length of service in predicting compensable silicosis, and the concordance between self-reported employment and that officially recorded. Compensable silicosis was determined by expert panels, with ILO profusion ≥1/0 as the threshold for compensability. Age, officially recorded and self-reported years of service, and years since first and last service of 3146 claimants for compensable silicosis were analysed. Self-reported and recorded service were moderately correlated (R = 0.66, 95% confidence interval 0.64–0.68), with a Bland–Altman plot showing no systematic bias. There was reasonably high agreement with 75% of the differences being less than two years. Logistic regression and receiver operating characteristic curve analysis were used to test prediction of compensable silicosis. There was little predictive difference between length of service on its own and a model adjusting for length of service, age, and years since last exposure. Predictive accuracy was moderate, with significant potential misclassification. Twenty percent of claimants with compensable silicosis had a length of service <10 years; in almost all these claims, the interval between last exposure and the claim was 10 years or more. In conclusion, self-reported service length in the absence of an official service record could be accepted in claims with compatible clinical findings. Length of service offers, at best, moderate predictive capability for silicosis. Relatively short service compensable silicosis, when combined with at least 10 years since last exposure, was not uncommon.

Keywords: Silicosis; length of service; latency; compensation; South Africa

Mr Thabang Duba

Medical Scientist, Immunology and Microbiology Section

Why did you choose this career and research path?

Initially I wanted to be a medical Doctor, but since I had no opportunity to study medicine I was then fortunate to be accepted for a medical sciences degree. I began to fall in love with the program and loved science from a young age. Medical science professionals place a high priority on the ability to stay on top of the latest industry trends.

What training and qualifications did you undergo and where?

I did BSc medical science (Immunology) at the University of Limpopo and graduated in the year 2013. From then, I did MSc in Medical microbiology at the University of Pretoria and graduated in the year 2018.

What are the most enjoyable aspects of doing research?

The most enjoyable aspect of research includes discovering or conducting research on new things, the ability to work on a world-changing effort and completing a Medical Scientist internship at NIOH (Immunology and Microbiology section) in 2019.

What are your research highlights to date?

I have been involved in a study on UVGI - assessment of technology for airborne MTB exposure in healthcare facilities, where my duties involved sample collection, laboratory test analysis data capturing and analysis. I have also been involved in a study on validation of three decontamination methods (Vapour Hydrogen Peroxide (VHP), Ultraviolet germicidal irradiation (UVGI), Steam sterilisation) for respirators used in South Africa to address stock shortages during the COVID-19 Pandemic. My duties involved decontaminating the respirators using Hydrogen Peroxide (VHP) and Ultraviolet germicidal irradiation (UVGI) before and after fit testing of respirators.

What are your career goals?

To finish my PhD to become Dr Duba and publish as many journal articles as possible!

Occupational health surveillance data provides vital information on the prevalence of occupational related diseases and injuries. It allows trends to be determined and prevention programmes to be monitored and evaluated. Thus surveillance of occupational exposures and health outcomes is an essential function of the NIOH. In this issue we present a summary of the Occupational Health Surveillance System (OHSS) looking at COVID-19 data for south african workplaces, 1 October 2020 to 31 October 2021.

OCCUPATIONAL HEALTH SURVEILLANCE SYSTEM OHSS: COVID-19 DATA FOR SOUTH AFRICAN WORKPLACES, 1 OCTOBER 2020 TO 31 OCTOBER 2021

The Occupational Health Surveillance System (OHSS) was established in 2020 to collect occupational health data related to COVID-19. The OHSS aims to provide strategic insights into all aspects of COVID-19 in the workforce. Early identification of high risk workplaces would allow interventions to be pursued to mitigate the impact of COVID19 on the workplaces. The system could also allow for the economic and human resource impact of COVID-19 to be determined.

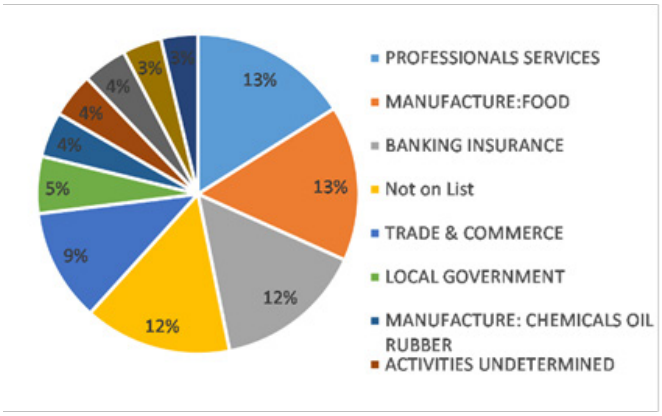
The system uses digital platforms and taps into existing platforms (e.g. those already used by private sector employers) to collect screening, vulnerability, testing, high risk workplace contacts, health outcomes and return to work data for the surveillance system of work-related COVID-19 infections in the private and public sector.

The OHSS was developed by the National Department of Health, the National Institute of Occupational Health (NIOH), the National Institute for Communicable Diseases (NICD), Centre for Scientific and Industrial Research (CSIR), Business for South Africa (B4SA) and occupational medicine specialists from University of Cape Town (UCT) and University of Kwa-Zulu Natal (UKZN), together with several major private sector corporations. The system became operational following the release of the Department of Employment and Labour Consolidated COVID-19 Directive on Health and Safety in the Workplace on 28 September 2020.

BUSINESS REGISTRATIONS

During the year of operation (1 October 2020 to 31 October 2021) a total of 5363 businesses registered (an increase of 2252 in the 6-month period from the previous report). Data of 2 081 283 employees, representing approximately 12% of all formal sector employees. Manufacturing sector for food, drinks and tobacco (13%) constituted the largest proportion of businesses registered. Employees in elementary occupations (19%) comprise the largest proportion of jobs registered followed by Sales and Service workers (19%) and Clerical and Support workers (15.0%).

SURVEILLANCE



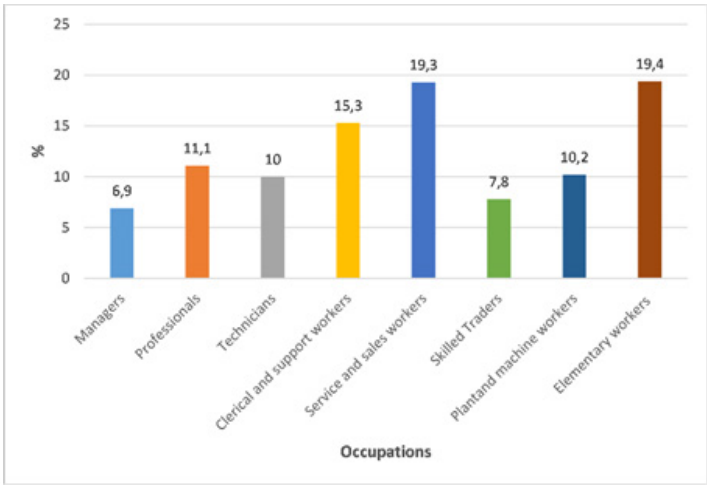


Figure 1A: Industry distribution of registered businesses, the remaining industries not shown in the graph were <2% each).
Figure 1B: Proportions of occupational groups registered on the OHSS.

COVID-19 POSITIVE CASES AND HEALTH OUTCOMES

A total of 4403 positive COVID-19 cases were reported to the OHSS system with the majority from Gauteng (41%), followed by Western Cape (17%) and Kwa-Zulu Natal (12%), although reporting from other provinces increased compared to the previous report. An increase in cases reported followed the two waves seen in the general public during the period of this report. Among the reported cases 67% were female and 43% were in the age group 30-39.9 years.

SYMPTOM SCREENING IN WORKPLACES

Approximately 13083 employees screened symptomatic during this period. The most common symptoms were lack of smell or taste (22%) followed by sore throat, muscle pains and headache (15.0% each) (Figure 2).

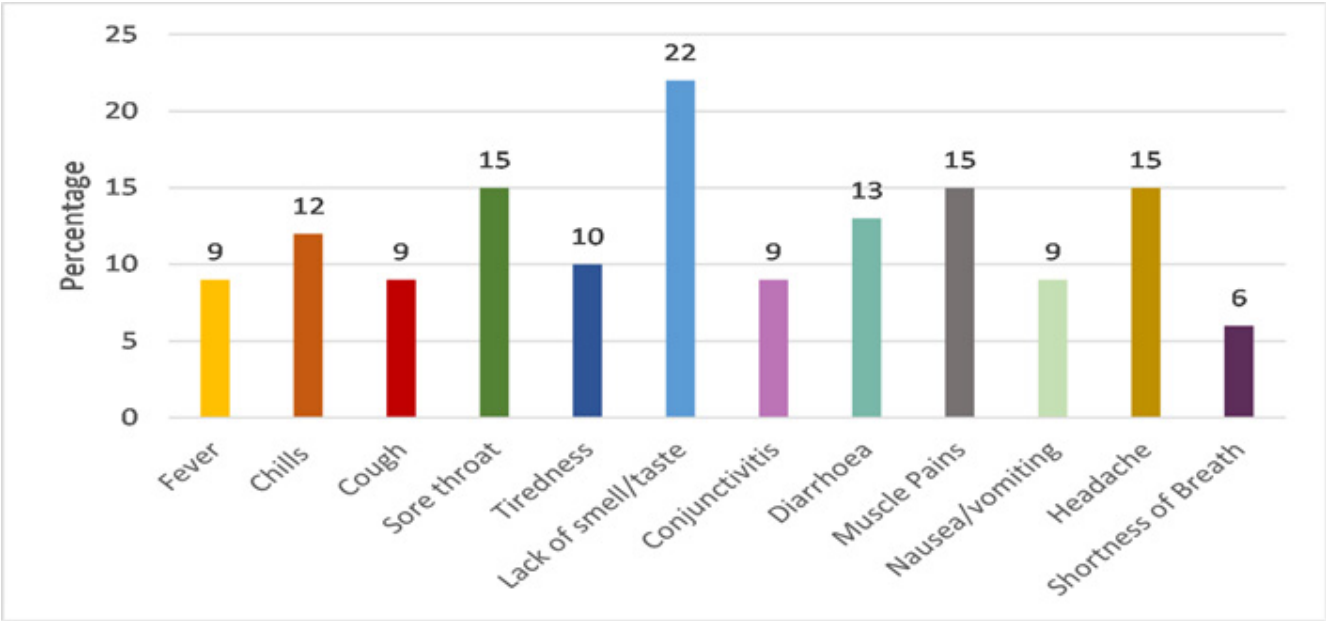


Figure 2. Prevalence of COVID-19 related symptoms reported by employees in routine symptom monitoring at workplaces.

REPORTED VULNERABILITY

Among the workers with reported comorbidities (20 343) the majority reported Tuberculosis and Chronic Obstructive Pulmonary Disease with a small proportion with hypertension or asthma. More Females (60%) reported co morbidities than males (39%). Only small differences were seen in reporting vulnerability by job category except for low reporting by elementary workers.

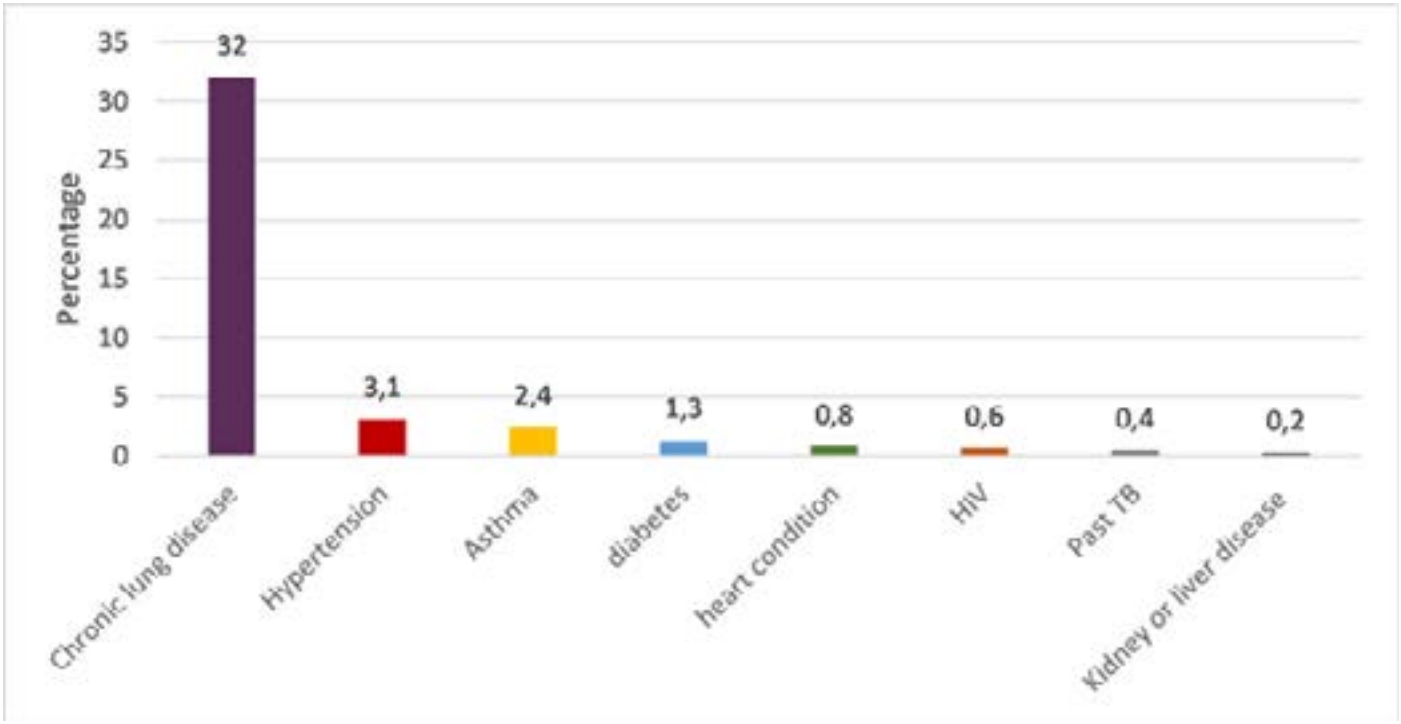


Figure 3. Prevalence of co morbidities reported by employees at workplaces.

LIMITATIONS AND CURRENT CHALLENGES ON THE OHSS

The data presented here is dependent on employers reporting the legally required information, which currently stands at 12% of all businesses. The data presented does not represent the true disease burden experienced by workers in the country, however it does give some insight into patterns of distribution of the pandemic among industries affected. The absence of reliable denominator data to calculate infection rates per sector prevents optimal utilisation of the data.

Further data from the OHSS is available on the on-line dynamic dashboard: https://datastudio.google.com/embed/u/0/reporting/bd5b8307-e349-418d-af3b-39b34bff6607/page/jfi1B.
Acknowledgements: Dr N Naicker, Prof M Jeebhay, Prof R Naidoo, Dr N Tlotleng, Dr S Kgalamono, Dr B Kistnasamy, Dr N Mayat, NIOH Epidemiology, Occupational Medicine Department, IT team, CSIR IT and Ford funding.

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SPECIALIZED SERVICE DELIVERY

The NIOH provides specialised, cost effective occupational health and safety services to national and provincial government departments as well as various industries including the private sector. In this issue, our service delivery highlights the national advisory support provision the Institute was involved in in response to the Covid-19 pandemic.

Due to the pandemic, the NIOH had to put on hold a number of specialised discipline-specific services it provided to many industrial sectors and government departments in order to provide national industry Covid-19 advisory support. During the 2020/2021 reporting period, the NIOH team provided their technical and professional knowledge to a variety of advisory service activities. The NIOH formed the Occupational Health Outbreak Response Team (OHORT) , which was made up of staff from various disciplines and was responsible for all Covid -19 support requirements. The following are some of the other technical platforms in which NIOH took part:

1. OHS Work stream
2. Private Public Labour group under OHS work stream
3. Academic group within the OHS work stream
4. NEDLAC and sub committee
5. NEDLAC- Communication for behavioural change
6. Wits SPH Return to School Committee
7. Surveillance system for workers – policy and technical teams
8. Care of the caregiver – with NDoH and NICD
9. Return to mining committee

More than 1278 COVID-19-related enquiries were addressed by the NIOH using the Information Services query system (info@nioh.ac.za). The Occupational Medicine Section received and responded to 1498 enquiries through the Workplace Hotline (0800 2121 75) over the same reporting period. The NIOH compiled a list of frequently asked questions (FAQs) based on these two platforms, which may be found at https://www.nioh.ac.za/covid-19-faqs/

TEACHING AND TRAINING

Since the outbreak of COVID-19 in South Africa in March 2020, the NIOH has carried out numerous training sessions for different industries in both the formal and informal sectors. Many of these sessions were training for essential services, government and frontline workers, the informal sector and private companies on Covid-19 related subjects. These training sessions were undertaken under the auspices of the NIOH's COVID-19 Occupational Health Outbreak Response Team (OHORT). They covered updates on the virus and critical topics like national regulatory requirements; roles and responsibilities in the workplace; risk assessments; routes of transmission; preventative/control measures; the proper usage of PPE and face masks; cleaning and decontamination processes; ventilation, vaccines and vaccination in the workplace; how to deal with positive cases in the workplace; potential sources of exposure and mental health to name a few.

In keeping with social distancing, these online interactive sessions were held via Zoom conferencing, where stakeholders across the country and beyond could log in, watch and participate. Videos, audio and presentations for these sessions were subsequently uploaded onto the NIOH website, which is zero-rated, and the links were sent out to all relevant stakeholders. In terms of continuous professional development (CPD) accreditation, the following professional bodies have approved our training sessions for COVID19: HPCSA, Medical and Dental Board, SAIOH, SAIOSH, and StellMed. Attendees were offered a post-webinar on-

The NIOH's Training Unit, a sub-unit of the Information Services Section, has coordinated and delivered numerous free online COVID-19 training webinars, directed at occupational health and safety (OHS) stakeholders during the period dominated by the Covid-19 pandemic, with the aim to strengthen the OHS communities' capacity to improve prevention and emergency preparedness in the workplace. The delivery of the webinars included support from the NIOH's Marketing and Communications Section, Information Technology Section and staff members of the Information Services Section. The training sessions covered a wide range of topics related to various aspects of the Covid-19 pandemic and has recently been dominated by the theme of COVID-19 vaccines and the workplace.

Since March 2020, **100 online webinars** were conducted, reaching **over 54'461** attendees. The COVID-19 webinar series has drawn an audience from the public sector and private sector, mainly from within the borders of South Africa, the SADC Region and the African continent, as well as from other continents across the globe.

On 21 April 2022, the NIOH convened a COVID-19 Centenary Webinar, featuring prominent South African and international speakers. The theme of the Centenary Webinar is "SARS-CoV-2/Covid-19: Strengthening Occupational Health resilience for national emergency pandemic response" and is a reflection of the collective out-break response within the OHS fraternity.

LIST OF COVID-19 WEBINARS CONDUCTED FROM 9TH MARCH 2020 TO 12TH APRIL 2022

No.	Date	COVID-19 Webinar Topics + Presentation Topics (March 2020 – April 2022)
1	09 Mar 20	Contact tracers & donning and doffing of PPE
2	11 Mar 20	Covid-19 - What EMS workers needs to know about the Corona Virus
3	16 Mar 20	Covid-19 - What Education Officials & Teachers needs to know about the Corona Virus Topic ????
4	17 Mar 20	Training for Healthcare workers
5	18 Mar 20	Train the Trainer COVID 19 - Preparing workplaces
6	18 Mar 20	COVID-19 National State of Disaster and Workplace Labour Relations - An NIOH Panel Discussion
7	19 Mar 20	Covid-19 Training for NHLS employees
8	23 Mar 20	Biorisk Assessment for Security Officers and Cleaning Staff
9	25 Mar 20	Train the Trainer COVID 19 - Preparing workplaces (2nd Session)
10	26 Mar 20	Training for NHLS employees on Covid-19
11	31 Mar 20	COVID-19: Preparing GP and Dentist Practices on issues of Health and Safety
12	01 Apr 20	COVID-19: Workplace Preparedness – CIVITAS Employees
13	02 Apr 20	COVID-19: Biorisk Assessment for Frontline Workers
14	07 Apr 20	Personal Protective Equipment (PPE) Use and COVID-19
15	08 Apr 20	Looking after your emotional wellbeing during this time - thinking about health care workers
16	09 Apr 20	COVID-19 and Management Roles & Responsibilities
17	21 Apr 20	COVID-19: Post-Lockdown Return-To-Work Preparedness (First)
18	23 Apr 20	COVID-19: Post-Lockdown Return-To-Work Preparedness (Second)
19	24 Apr 20	COVID-19: OHS Training for Environmental Health Practitioners (EHPs)
20	30 Apr 20	COVID-19 Training For NHLS Shopstewards
21	04 May 20	COVID-19: Step-By-Step Risk Assessment (and practical RA tools)
22	05 May 20	Addressing questions on COVID-19 and Return-to-Work Preparedness
23	06 May 20	COVID-19 Training Of Employees in the Food Industry
24	26 May 20	[WHC] Implications of COVID-19 in the Workplace - Training for Shopstewards
25	28 May 20	[NEPAD] Risk assessment for COVID-19
26	29 May 20	[WHC] Implications of COVID-19 in the Workplace - Training for Shopstewards (Repeat)
27	02 Jun 20	[NEPAD] Available control measures for COVID-19
28	04 Jun 20	COVID-19 Training for employees in the Construction Sector
29	05 Jun 20	Training Session for Gauteng Provincial Government (GPG): 16.2 Appointees, Occupational Health & Safety Practitioners and Organised Labour
30	09 Jun 20	[WHC] What are the responsibilities of employers during COVID -19
31	10 Jun 20	COVID-19 Training Session for Gauteng Provincial Government (GPG) Senior Managers
32	12 Jun 20	[WHC] What are the responsibilities of employers during COVID -19 (Repeat)

No.	Date	COVID-19 Webinar Topics + Presentation Topics (March 2020 – April 2022)
33	23 Jun 20	[WHC] Available control measures for COVID-19 in specific workplaces
34	26 Jun 20	[WHC] What to do when an employee tests positive for COVID-19 at work?
35	30 Jun 20	[WHC] Available control measures for COVID-19 in specific workplaces (Repeat)
36	01 Jul 20	[WHC] What to do when an employee tests positive for COVID-19 at work? (Repeat)
37	02 Jul 20	[WHC] What useful OHS information resources are available for COVID-19 workplace preparedness & prevention?
38	07 Jul 20	[WHC] COVID-19 Vulnerable employees risk assessment
39	10 Jul 20	[WHC] COVID-19 workplace health risk assessment and PPE effectiveness
40	14 Jul 20	[WHC] COVID-19 Vulnerable employees risk assessment
41	16 Jul 20	COVID-19 Health Care Worker Surveillance Discussion
42	17 Jul 20	[WHC] Management of persons under investigation (PUIs) for COVID-19: Experiences in different sectors of the economy
43	30 Jul 20	[WHC] Medical screening and testing of COVID-19 in different workplaces
44	04 Aug 20	[WHC] Management of persons under investigation (PUIs) for COVID-19: Experiences in different sectors of the economy (Repeat)
45	06 Aug 20	[WHC] Medical screening and testing of COVID-19 in different workplaces (Repeat)
46	13 Aug 20	Impact of COVID-19 on Mental Health
47	20 Aug 20	Compensation for workplace acquired COVID-19: A practical approach
48	27 Aug 20	Occupational Safety and Health in Urban Public Workplaces for workers in the InformalEconomy
49	09 Sep 20	[DPSA] Workplace Risk Assessment, Cleaning & Decontamination
50	10 Sep 20	Ethical considerations of OH & Safety personnel in the workplace around COVID-19
51	11 Sep 20	[DPSA] Workplace Risk Assessment, Cleaning & Decontamination (EH&W Policy Support Workshop)
52	18 Sep 20	Ask the expert “The use of fabric masks and masks with vents”
53	01 Oct 20	Fitness for Work Considerations Post COVID-19
54	06 Oct 20	COVID-19 and the Built Environment
55	08 Oct 20	Legionella and COVID-19: Building water safety during pandemics and beyond
56	15 Oct 20	Working from home during COVID-19 and beyond: An Ergonomics perspective
57	20 Oct 20	Occupational Health Surveillance of COVID-19 in South African Workplaces
58	29 Oct 20	The triple burden of COVID-19, HIV and TB in the workplace
59	02 Dec 20	COVID-19 Risk Assessment Training - for Staff of Gauteng Provincial Government (GPG), OHSC and Office of the Chief Justice/Judiciary
60	10 Dec 20	COVID-19 PPE Quality Assurance - Fit testing of respirators training (for the NDoH Provincial Officials; Venue: Pretoria)
61	27 Jan 21	NHLS Information Session – COVID-19 update for NHLS Staff
62	11 Feb 21	COVID-19 Occupational Health Surveillance System (OHSS) for South African Workplaces: Update
63	24 Feb 21	Covid-19 - Risk Assessment Training
64	02 Mar 21	CMORE - Creating your own reports, a hands-on workshop
65	04 Mar 21	COVID-19 Vaccines in the Workplace- An overview

No.	Date	COVID-19 Webinar Topics + Presentation Topics (March 2020 – April 2022)
66	09 Mar 21	General OHS and COVID-19 Training for Health and Safety / SHE Representatives
67	18 Mar 21	COVID-19 and Travel Medicine
68	25 Mar 21	COVID-19 Vaccines in the Workplace- An overview [Repeat]
69	15 Apr 21	COVID-19: What are the responsibilities of Employers
70	22 Apr 21	COVID-19: Long COVID and the Workplace
71	29 Apr 21	COVID-19: Workplace Risk Assessment, Cleaning, Decontamination, Storage and transportation
72	04 May 21	COVID-19: Mental health resilience for Health Care Workers
73	12 May 21	Guidance on routine and deep cleaning of workplaces when COVID-19 positive cases have been identified (DMRE COVID-19 Steering Committee)
74	18 May 21	Workers' rights in the era of COVID-19 and the workplace
75	27 May 21	Occupational Health & Safety, Workplace Systems and COVID-19
76	03 Jun 21	Basic Ventilation Requirements: COVID-19 Directions and National Building Regulations & Other Guidelines
77	01 Jul 21	Working from home – OHS policy and reasonable accommodation during COVID-19
78	08 Jul 21	"Long Covid" and the Workplace – An Update
79	14 Jul 21	COVID-19: Occupational Health Surveillance System (OHSS) Update
80	15 Jul 21	COVID-19 and Skin Conditions in the Workplace
81	22 Jul 21	COVID-19: Droplets versus Aerosols & ventilation – The role of ventilation in the workplace
82	29 Jul 21	Occupational Health Services for COVID-19 in the health sector
83	17 Aug 21	COVID-19 Vaccines in the Workplace Unpacked (for IDC Staff)
84	20 Aug 21	Occupational Health Surveillance System (OHSS): CSV new platform & data submission demonstration
85	16 Sep 21	SASSA Northern Cape: Information Session on COVID-19 Vaccines
86	30 Sep 21	Preventing, Identification and Management of Infections in the COVID-19 work context (Office of the Chief Justice)
87	04 Oct 21	COVID-19 and vaccine in the workplace (MSC Cruises: Session 1 of 2)
88	27 Oct 21	COVID-19 and vaccine in the workplace (MSC Cruises: Session 2 of 2)
89	11 Nov 21	Background on COVID-19 & State of the Pandemic in SA. What does it mean during and post the pandemic?
90	18 Nov 21	COVID-19 and vaccine in the workplace (Session 1 of 2 - Road Accident Fund)
91	24 Feb 22	COVID-19 and vaccine in the workplace (Session 2 of 2 - Road Accident Fund)
92	03 Mar 22	South African Reserve Bank (SARB) Wellness and Occupational Health Webinar
93	10 Mar 22	Occupational Health Surveillance System (OHSS) - Update on reporting
94	11 Mar 22	Gauteng Provincial Government's (GPG) OHS Seminar
95	15 Mar 22	COVID-19 in the Workplace webinar (City of Ekurhuleni)
96	24 Mar 22	Ergonomics and COVID-19: What are lessons learnt?
97	25 Mar 22	COVID-19 vaccines and the Workplace
98	29 Mar 22	COVID-19 and vaccines in the workplace (HESAP)
99	12 Apr 22	The new COVID-19 guidelines (NDoH directives)
100	21 Apr 22	Centenary webinar: SARS-CoV-2/COVID19: Strengthening Occupational Health Resilience for National Emergency Epidemic Response for South African Workplaces

The NIOH's COVID-19 training webinars were augmented with a variety of OHS information resources disseminated through a number of channels, e.g. the NIOH website, OccuZone newsletter, Twitter, the YouTube channel, Covid-19 Hotline and NIOH Info mailbox. These COVID-19 resources included government regulations and directions, posters & factsheets, information graphics, guidelines and videos.

CONTRIBUTIONS BY INTERNAL AND EXTERNAL SPEAKERS

COVID-19 training webinars drew mainly on internal NIOH staff expertise as presenters and were increasingly augmented with external specialists and expertise. The internal presenters included representatives from fraternal National Health Laboratory Service (NHLS) divisions including the National Institute for Communicable Diseases (NICD).

Guest/ external presenters came from the public sector, academia and private sector. These included speakers from the National Department of Health's vaccine programme; national professional bodies; national and provincial government departments; national regulatory and enforcement agencies; academic institutions; national medical, scientific and research bodies; and international speakers.

The contributions of all the internal and external speakers are being acknowledged by the NIOH in the 21st April 2022 **COVID-19 Centenary Webinar** and the associated electronic compendium publication. See "Table A" below for comparison of time contributed by both internal and external presenters.

Comparison of Time Contributed by Internal NIOH and External Trainers/Presenters
(Available data on 72 online webinars; 1st April 2020 - 25th March 2022)

No.	Webinar Trainers/Presenter Categories	%	Online Time Contributed
1.	Internal NIOH, NICD & NHLS Speakers	53.2	70 hours 25 minutes
2.	External Speakers	46.8	62 hours 00 minutes
Total online time contributed to COVID-72 Webinars		100.0	132 hours 25 minutes

Table A: Comparison of Time Contributed by Internal NIOH and External Trainers/Presenters

NIOH staff members contributed to more than half of the presentations. Many of the vaccine in the workplace related webinars were contributed by the staff of the NIOH's Occupational Medicine Section.

WORKPLACES REACHED THROUGH THE COVID-19 WEBINARS

Data available for **53** of the 100 webinars completed **(May 2020 - April 2022)** provides insight into the number of workplaces represented by those who attended. Below is the breakdown of workplaces reached for each of the 9 provinces in South Africa.

A total number of **18'732** workplaces were reached in the **53** webinars. This involved an average of 353 workplaces per webinar. Given that a total of 100 webinars were conducted during the period **March 2020 to April 2022,** based on this average, it could be estimated total number of 35'300 workplaces were reached for the 100 webinars conducted. See the Table B below:

Number of Workplaces Reached through the Webinars (National & per Province) (Available data for 52 webinars - Period: 26th May 2020 – 25th March 2022)										
26 May 2020 – 12 April 2021	**Total**	**EC**	**FS**	**GP**	**KZN**	**LP**	**MP**	**NW**	**NC**	**WC**
No. of workplaces	**18'732**	1'446	659	8'114	2'289	504	967	547	602	3'604
Percentage of total	**100%**	7.7 %	3.5 %	43.3 %	12.2 %	2.7 %	5.2 %	2.9 %	3.2 %	19.2 %
No. of webinars	**53**	53	53	53	53	53	53	53	53	53
Average number of workplaces per webinar	**353.4**	27.3	12.4	153.1	43.2	9.5	18.2	10.3	11.4	68.5

Table B: Number of Workplaces Reached through the Webinars (National & per Province)

OHS STAKEHOLDER PARTICIPANTS REACHED THROUGH THE COVID-19 WEBINARS

Below is the number of participants per province for **51** webinars that had the relevant data with available. The Gauteng Province led with the highest portion of attendees of **46.7%**. The available records are for the webinars ran from **26th May 2020 to 12th April 2021**. The attendance is dominated by the more urbanised regions than the rural regions.

Provincial breakdown of Webinar Attendees for 46 webinars (Available provincial data for 50 Webinars; From 26th May 2020 - 25th March 2022)				
No.	**Province**	**Number of attendees**	**%**	**Averages**
1.	Gauteng (GP)	11'837	46.7	232.1
2.	Western Cape (WC)	4'509	17.8	88.4
3.	KwaZulu-Natal (KZN)	2'906	11.5	57.0
4.	Eastern Cape (EC)	1'747	6.9	34.3
5.	Mpumalanga (MP)	1'361	5.4	26.7
6.	Free State (FS)	864	3.4	16.9
7.	Northern Cape (NC)	765	3.0	15.0
8.	North West (NW)	730	2.9	14.3
9.	Limpopo (LP)	652	2.6	12.8
Total attendees (for 51 webinars)		**25'371**	**100.0**	**497.5**
Total average of 497.4participants per webinar				

Table C: Provincial breakdown of Webinar Attendees for 46 webinars

Almost two-thirds of the webinar attendees were female. Below is Table D that provides some insight into the gender representation for 19 of the COVID-19 webinars that contained the relevant data. 63.6% of the participants were female and 36.4% were male.

Number of Women and Men reached through the Webinars (Available data for 19 webinars for the period: 1st April 2021 - 25th March 2022)		
Gender	**Number**	**%**
Female	6'735	63.6%
Male	3'847	36.4%
Total	10'582	100%

Table D: Number of Women and Men reached through the webinars

NIOH ACCREDITED AS A SKILLS DEVELOPMENT PROVIDER (SDP) BY QCTO FOR 2 SKILLS PROGRAMMES

The Quality Council for Trades and Occupations (QCTO) has accredited the NIOH to offer the following COVID-19 related skills programmers for a period of 5 years, in accordance with the Skills Development Act and the Continuing Education and Training Act.

Accreditation of NIOH as a Skills Development Provider – 2 Skills Programmes				
No.	**Qualification/ Programme Title**	**NQF Level**	**ID or OFO Code**	**Minimum Credits**
1.	Skills Programme Workplace Preparedness & Risk Control Officer: Communicable Disease & Occupational Diseases	04	SP-191224	05
2.	Skills Programme Workplace Preparedness & Risk Control Assistant: Communicable Disease & Occupational Diseases	03	SP-191223	03

The NIOH's Immunology and Microbiology Section has developed an online Biorisk Management short course focussed on COVID-19 and is preparing to deliver on the first of the two skills programmes. The 5-day short course will be launched on the NIOH's virtual e-Learning platform in April/May 2022. This 5-day training includes a course fee. Subscribe to our training mailing list to receive more info and news related to our training activities. E-learning@nioh.ac.za

YouTube SUBSCRIBE **Follow us on YouTube**
https://www.youtube.com/channel/UCA24Q1QQmshRuX-pKzVWtWA/videos

The NIOH will continue to provide training on COVID-19 and for further info check the website for training updates at http://www.nioh.ac.za/covid-19-presentations/. If there is any specific training that the readers feel is important and should be done they can send a request to info@nioh.ac.za.

PUBLIC RELATIONS AND AWARENESS

The onset of the pandemic affected some of the specialized services provided by the NIOH, but it provided also numerous opportunities also for the Institute that emphasised its value well beyond the occupational health space. We raised our profile and digital footprint, placing emphasis on the value and importance of occupational health and safety provision within workplaces.

DIGITAL FOOTPRINT

Over the two years since the pandemic began, the NIOH has enhanced its brand identity and positioned the Institute's website portal as a critical "touchpoint" for quality OHS guidance and information dissemination at a time when many workplace stakeholders required access to reliable COVID-19 information. This was done through topical multimedia website content and quick access to toolkits and information fact sheets which enabled focused, customised communication to stakeholders.

The Institute further increased its digital footprint through the effective utilisation of its social media platforms - Twitter and YouTube- which were launched in the 2018 financial year. These communication channels provided the opportunity for networking on a global scale, assisted with targeting specific stakeholders through tailored communication, and provided a diverse public platform to share COVID-19 related information.

These digital platforms, although still upcoming, saw sustained growth over time with an increased viewership base, see Table 1 below.

PLATFORM	VIEWERSHIP highlights - over 24 months
Twitter	**688 638 tweet impressions**
Website	**177 556 unique visitors**
Youtube	**432 000 impressions**

Table 1: Viewership highlights from March 2020 – March 2022 24 months

NIOH videos on YouTube garnered 52 652 views. Twitter followers increased over the period by 935 subscribers. The above listed impressions and unique visitors has resulted in the image of the NIOH being tremendously and positively enhanced in the public domain.

The Institute's digital reach was further strengthened by strategically identified opportunities for engagement with the media. These included opinion editorials, feature articles and press releases on:

- Occupational Health Surveillance System (OHSS) - Feb 2021 (8 published articles 1 broadcast interview)
- Power FM interview on OHSS with Dr Nisha Naicker – Feb 2021
- Ford Donation media drive - March 2021 (This media drive resulted in 450 mentions and 39 million impressions. 56 Online articles; 3 published print articles; 1 broadcast interview)
- Women's Day Occupational Health Outbreak Response Team (OHORT) profile – August 2020 (16 print; 1 broadcast; 18 online)
- Long COVID and the implications on workplaces – August 2021 (1 article – Outlook SA magazine)
- How COVID-19 opened the door to a neglected and undervalued Occupational Health sector – April 2021 (3 articles)
- COVID-19: How can employers support workers and communities with mental health issues – October 2021 (1 article – published on iafrica.com)
- COVID-19: How can employers support workers and communities with mental health issues – October 2021 (1 article – published on iafrica.com)

Media engagement also included a crisis communication letter over the publication of inaccurate and misinformation on News24 – August 2020 (1 article)

INFORMATION DISSEMINATION

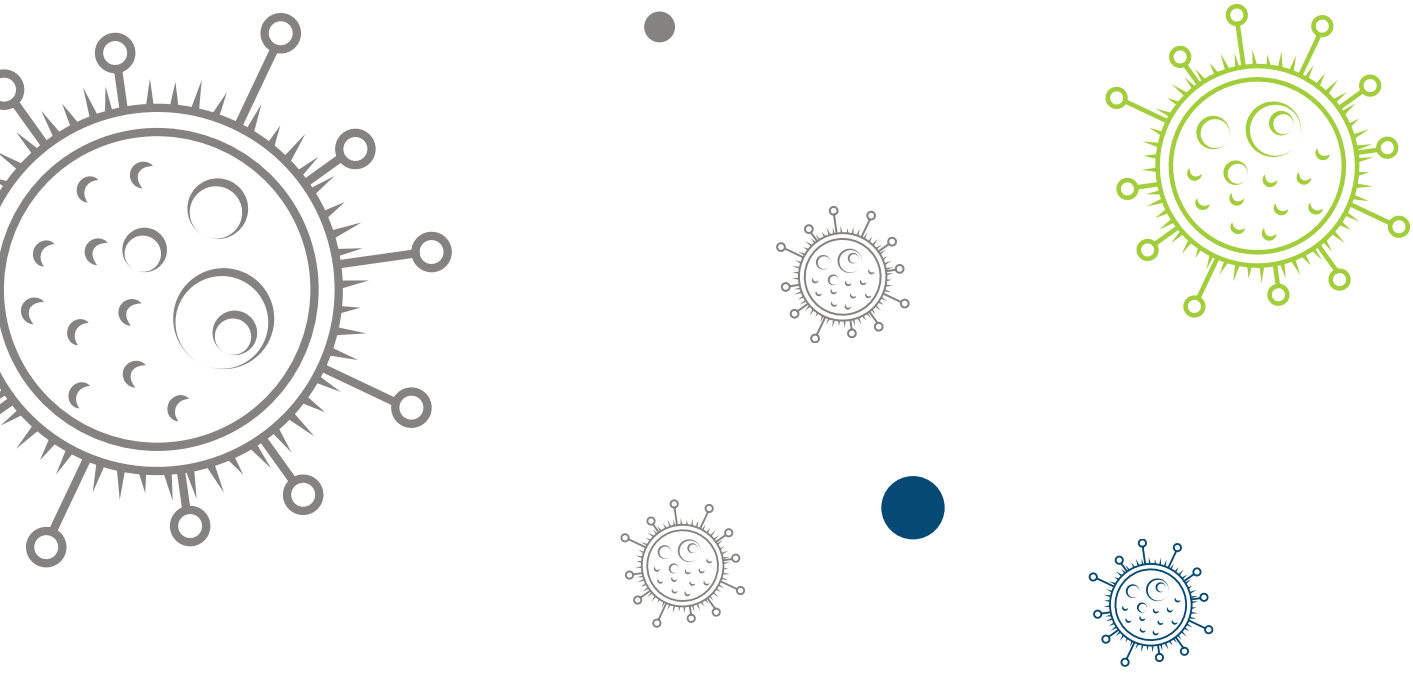
The members of OHORT prioritised enhancing access to reliable information, in an effort to curb misinformation and disinformation. This initiative resulted in the creation and dissemination of over 53 fact sheets, posters and infographics relating to various aspects of the pandemic that impacted workplaces.

These are freely available on the NIOH's website. Some of the fact sheets were translated into isiZulu, Sesotho, Tsonga and Tshivenda. The Covid-19 fact sheet for general business was also translated into South African Sign Language and Braille.

The content has been periodically revised and updated as new information becomes available. The Communications and Marketing Section also created and disseminated critical education videos for workplaces, such as the correct way to don and doff PPE, correct procedures for risk assessment, waste management, cleaning and decontamination procedures, medical screening, positive worker protocol and much more including regulatory and compensation matters. Through these education materials, which were shared on various digital platforms including social media, the NIOH was able to reach workplaces online and effectively equip them with the know-how to deal with Covid-19. Through our educational content, we were effective in reaching stakeholders and workers from across the world including USA, UK, Namibia, India, Finland, Australia, Argentina and more. In fact, the NIOH website figures continue to show that many international visitors return for more on a monthly basis. In this regard, the Institute continues to expand its digital footprint across the formal and informal economy in South Africa and the continent, as well as across the world. This is an outstanding feat for us considering that when the pandemic began, the NIOH Twitter page had a mere 100 followers. We have definitely come a long way and have learnt many lessons in the process, including adapting to the ever-changing landscape of modern communication.

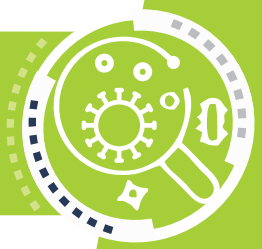
COVID-19 CENTENARY WEBINAR: DIGITAL COMPENDIUM

In commemoration of the NIOH COVID-19 Centenary Webinar, the Institute has created a Digital Compendium Booklet that contains a selection of some of the Covid-19 fact-sheets and posters that were produced and disseminated between March 2020 and March 2022, aimed at various workplaces.
https://www.nioh.ac.za/covid-19-digital-compendium/



COVID-19 RELATED INFORMATION AND EDUCATION MATERIALS

The National Institute of Occupational Health (NIOH) and its Outbreak Response Task Team has been actively involved in COVID-19 training sessions and public dissemination of information and educational material since early March 2020, when news of the first Coronavirus case was announced.



The NIOH has been utilising several platforms to reach South Africans including Twitter, YouTube and its website **(which has been zero-rated*)** to raise awareness on its training sessions, educational videos and audio, as well as presentations and posters.

This has so far been a resounding success and as Occupational Health and safety champions and ambassadors, we should all be utilising these training sessions and minute-long videos for our own health and safety and that of our colleagues, families and friends.

**The NIOH website is zero-rated by Vodacom, Telkom, MTN, Rain, MWeb & Internet Solutions. No data charges will therefore apply for users of these mobile network providers. All content and resources on this website can be downloaded and browsed for free, excluding YouTube viewing and downloading.*

PLEASE SEE BELOW LINKS TO THE TWITTER VIDEOS ONLINE THUS FAR:

1.COVID-19: Know the 3 C's and 3 W's – Prevention during the Winter Season
https://www.nioh.ac.za/wp-content/uploads/2021/06/The-Three-Cs-and-Ws.mp4

2.COVID-19: What employers need to consider for vulnerable workers
https://www.nioh.ac.za/wp-content/uploads/2020/08/Vulnerable-workersUpload.mp4

3.What every employer should do during COVID-19
https://www.nioh.ac.za/wp-content/uploads/2020/06/Twitter_03_What-every-workplace-needs-FINAL.mp4

4.What employers need to know about risk assessment
https://www.nioh.ac.za/wp-content/uploads/2020/06/Twitter_05_Risk-Assessment.FINAL-2-mp4.mp4

5.Steps employers can take when a worker is symptomatic or tests positive for Covid-19 at work
https://www.nioh.ac.za/wp-content/uploads/2020/07/When-an-employee-tests-positive.mp4

6.The importance of Medical Screening in the Workplace
https://www.nioh.ac.za/wp-content/uploads/2020/08/The-importance-of-medical-screening-FINAL.mp4

7.Working during lockdown? How to stay safe
https://www.nioh.ac.za/wp-content/uploads/2020/06/Twitter_01_Lockdown-workers-FINAL-3.mp4

8.What you need to know about donning & doffing surgical masks
https://www.nioh.ac.za/wp-content/uploads/2020/07/Donning-and-doffing-surgical-mask.FINAL-2-mp4.mp4

9.What you need to know about surgical masks
https://www.nioh.ac.za/wpontent/uploads/2020/06/Twitter_04_Surgical-masks-FINAL-2-.mp4

10.Step-by-step guide on donning and doffing of a Vflex N95 respirator
https://www.nioh.ac.za/wpcontent/uploads/2020/07/Vflex-N95-respirator-FINAL.mp4

11.Donning and doffing of cup shaped N95 respirator
https://www.nioh.ac.za/wp-content/uploads/2020/07/Donning-and-doffing-of-cup-shaped-N95-respirator.mp4

12.What you need to know when donning and doffing a Kimberly Clark respirator
https://www.nioh.ac.za/wp-content/uploads/2020/08/Donning-and-doffing-a-Kimberly-Clark-respirator-FINAL-.mp4

13.The steps you need to know for donning gloves
https://www.nioh.ac.za/wpcontent/uploads/2020/06/Donning-of-gloves.FINAL-3.-mp4-1.mp4

14.The steps you need to know for doffing gloves
https://www.nioh.ac.za/wpcontent/uploads/2020/07/Doffing-of-gloves-2_FINAL.mp4

15.Which workers require medical N95 respirators?
https://www.nioh.ac.za/wp-content/uploads/2020/06/Twitter_02_The-use-of-N95-respirators_final.mp4

16.A guide on how to doff gloves using the beak method
https://www.nioh.ac.za/wp-content/uploads/2020/07/Doffing-gloves-beak-method-FINAL.mp4

Twitter **Follow us on Twitter**
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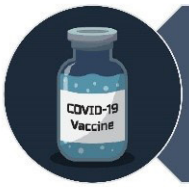
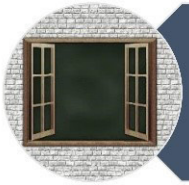
Below is a link to posters as well as various factsheets that have been developed. These can be utilised in your respective workplaces and are print-ready (A3 size).
NIOH Factsheets & Posters http://www.nioh.ac.za/covid-19/

COVID-19 Ventilation & Vaccination Vital for workplace safety

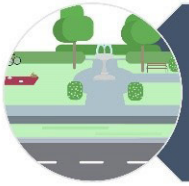
In addition to the known non-pharmaceutical COVID-19 control measures, here are some other crucial precautions that can help.



Consider taking the vaccine. It provides an added layer of protection.

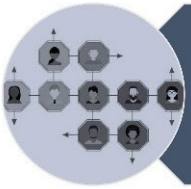


Natural and artificial ventilation is important. Always allow fresh outdoor air in indoor spaces.



Utilise outdoor spaces wherever possible.

Opt for online meetings. Avoid face to face contact if you can.



Don't listen to social media hype. Listen to medical experts.

Try to avoid crowds and limit gatherings.

COVID-19 Workplace Preparedness & Prevention
HEALTHY, SAFE & SUSTAINABLE WORKPLACES
Workplace Hotline: 0800 2121 75
Occupational Health Surveillance System [OHSS]
General queries for data submision: 0723215503 | 0713981169 | OHSWorkplace@nioh.ac.za
www.nioh.ac.za | info@nioh.ac.za | twitter: @nioh_sa

NATIONAL HEALTH LABORATORY SERVICE

NATIONAL INSTITUTE FOR OCCUPATIONAL HEALTH
Division of the National Health Laboratory Service

COVID-19
Workplace Preparedness & Prevention

Workplace Hotline: 0800 2121 75
OHSS queries: OHSWorkplace@nioh.ac.za
OHSS hotline: 072 321 5503 | 071 398 1169

"Healthy, Safe, Happy & Sustainable Workplaces"

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PLEASE CONSIDER THE ENVIRONMENT BEFORE PRINTING.