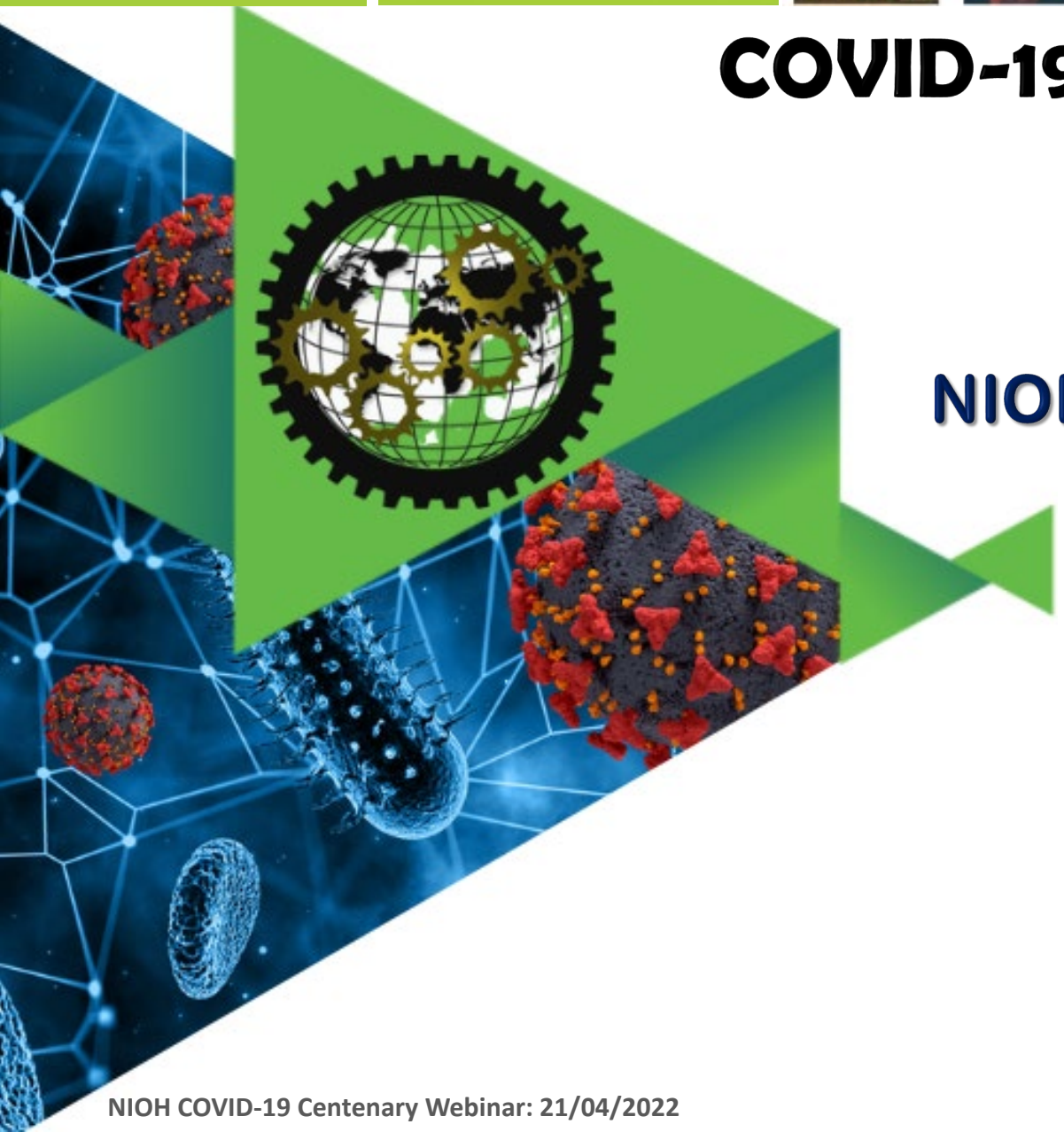
NATIONAL HEALTH LABORATORY SERVICE

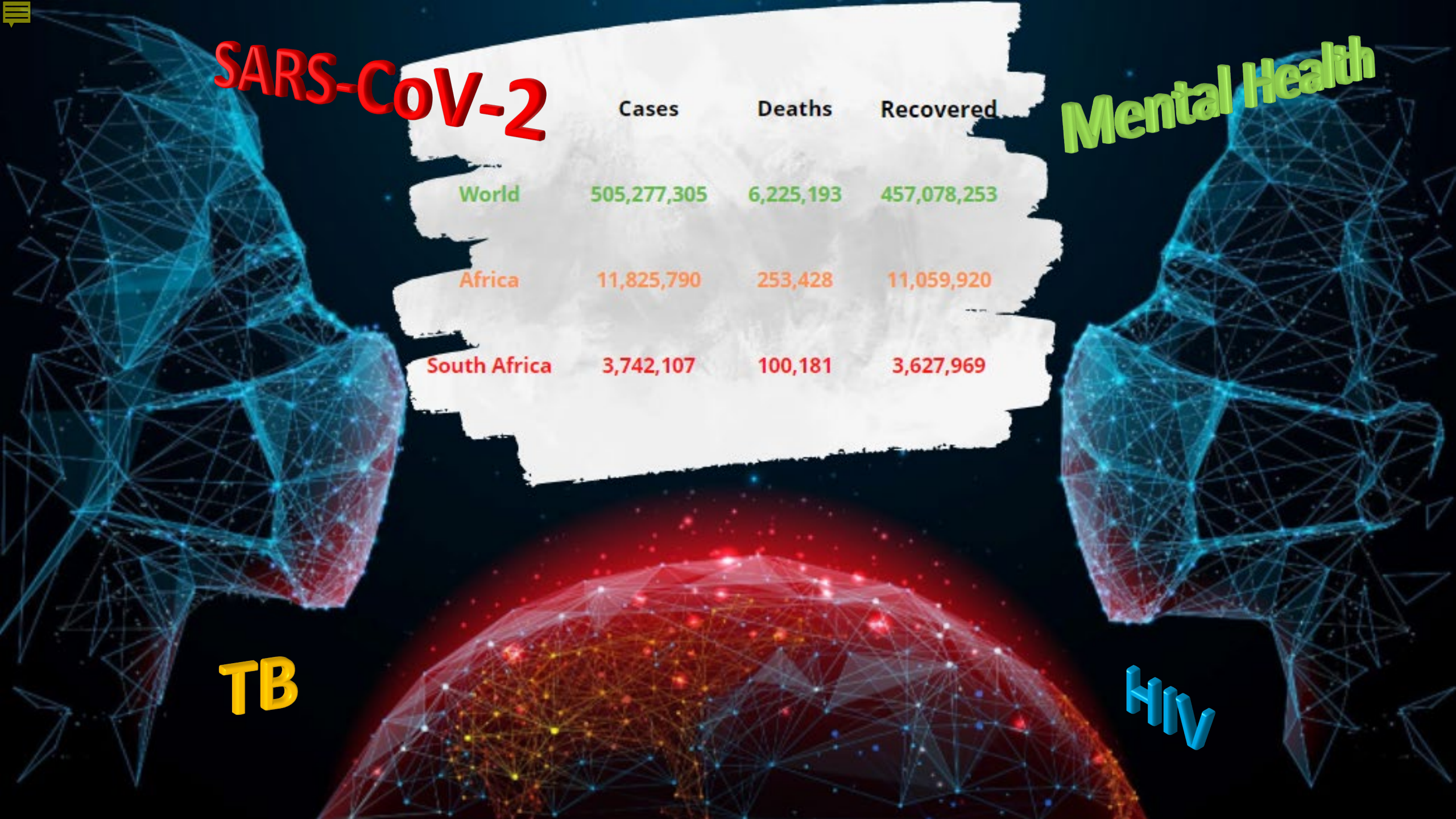
NATIONAL INSTITUTE FOR OCCUPATIONAL HEALTH
Division of the National Health Laboratory Service

COVID-19 PREVENTION & WORKPLACE PREPAREDNESS

NIOH'S RESPONSE & LESSONS LEARNT



Dr Tanusha Singh
Head of Immunology & Microbiology
National Institute for Occupational Health, NHLS
Chair: Occupational Health COVID-19 Outbreak Response Team
Lecturer: Department of Clinical Microbiology & Infectious Diseases, Wits
Senior Research Associate: Department of Environmental Health, UJ
PO Box 4788, Johannesburg, 2000, RSA
Practice No.: 5200296
Office: + 27 (0) 11 712 6475 | Fax: +27 (0) 11 712 6426 / 086 610 4506
Email: tanushas@nioh.ac.za | Website: http://www.nioh.ac.za

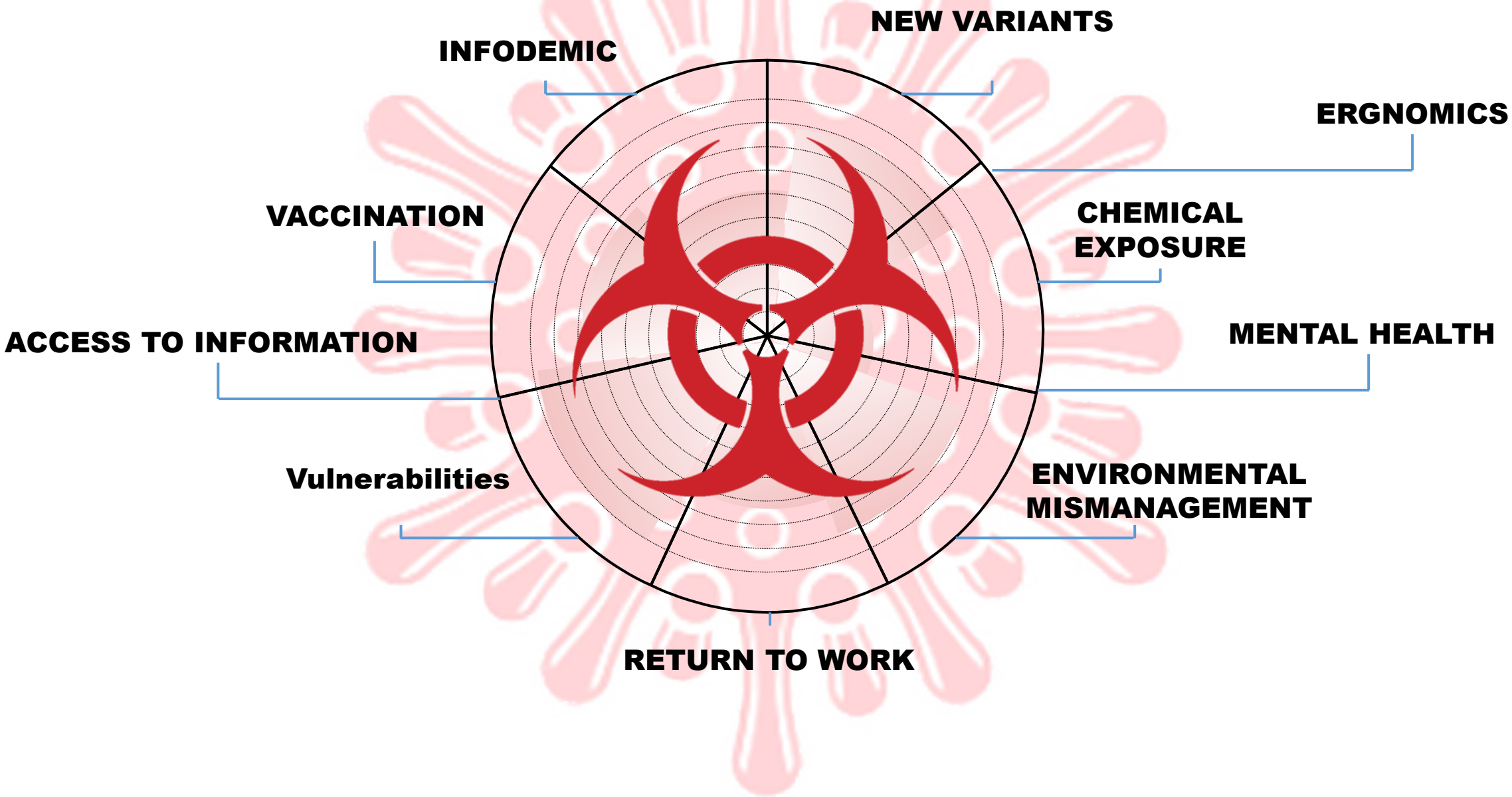


	Cases	Deaths	Recovered
World	505,277,305	6,225,193	457,078,253
Africa	11,825,790	253,428	11,059,920
South Africa	3,742,107	100,181	3,627,969

- Inequity
- Low paid workers hit hardest
- Healthcare & non-healthcare
- Definitive impact on OH
- Prepare workplace to prevent exposure

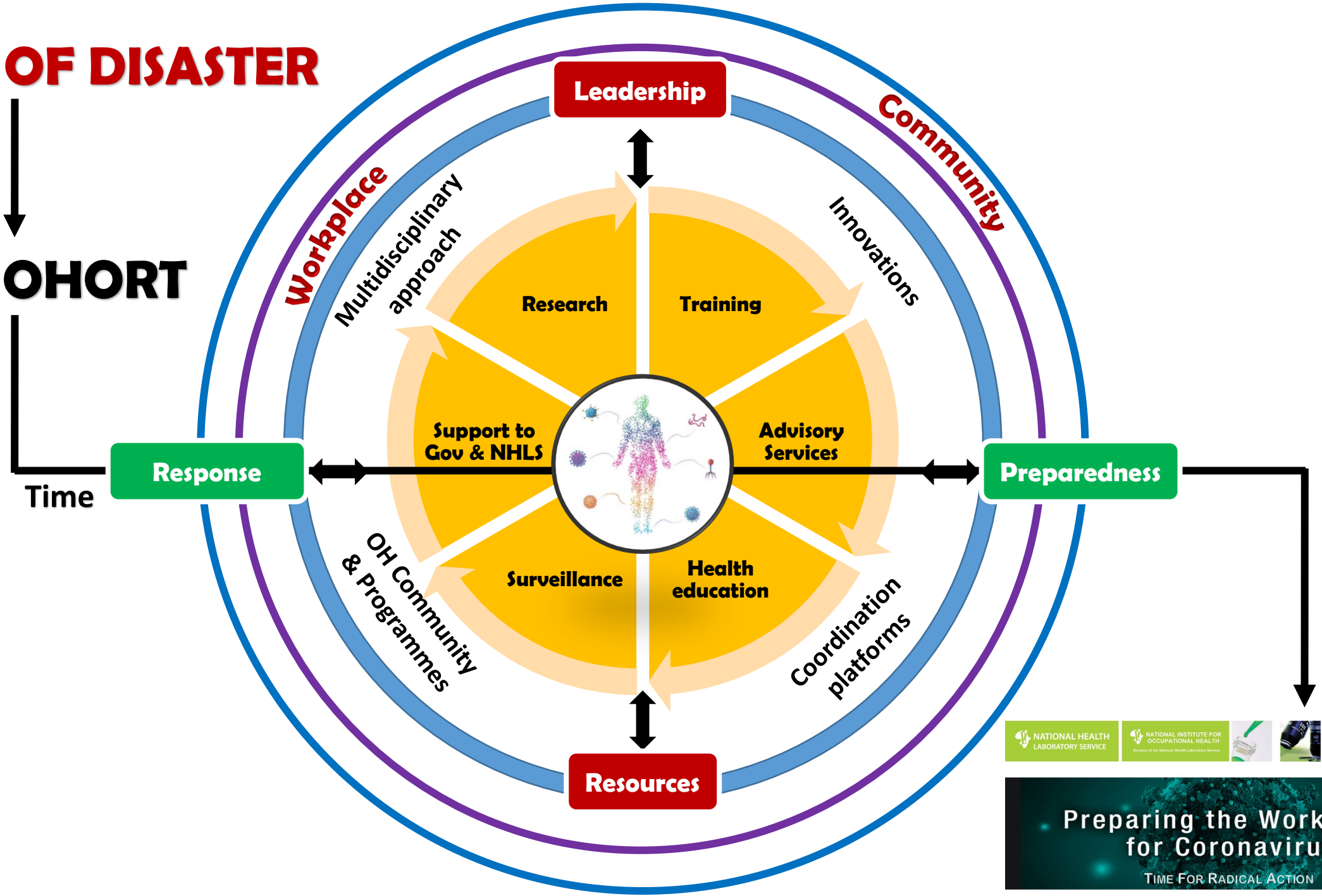
Compounding Factors

of COVID-19



STATE OF DISASTER

NIOH OHORT



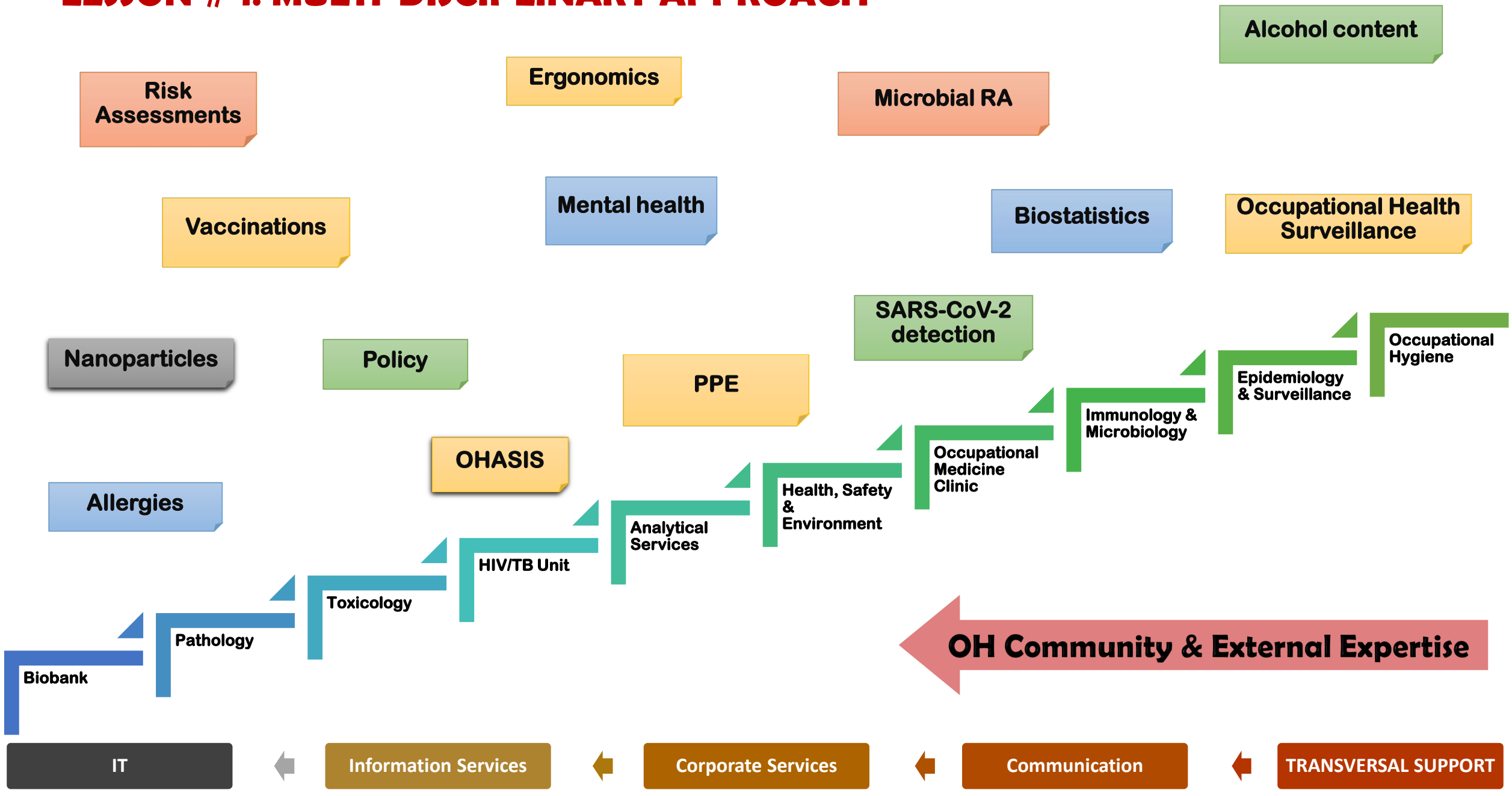
NATIONAL HEALTH LABORATORY SERVICE

NATIONAL INSTITUTE FOR OCCUPATIONAL HEALTH

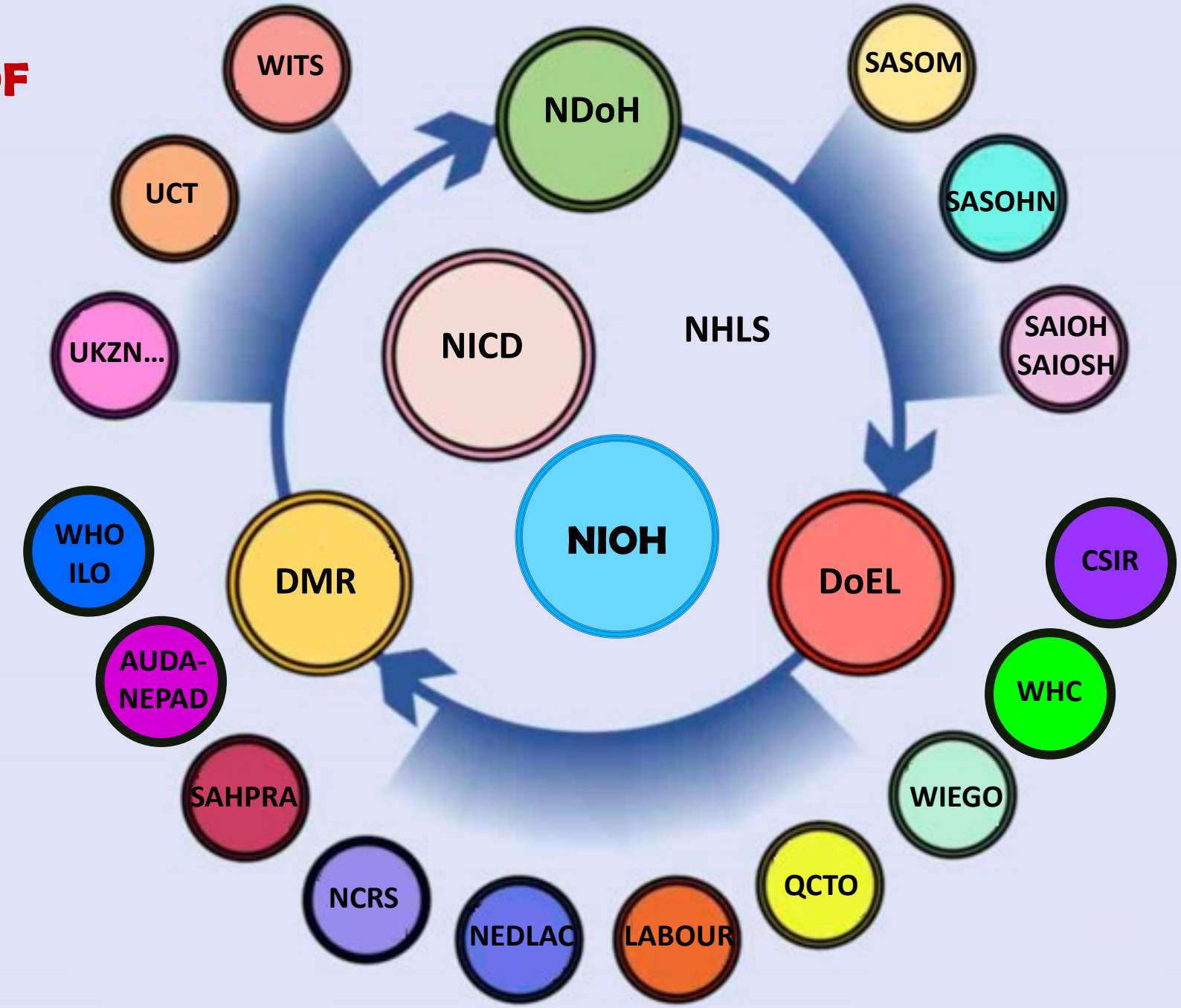
Preparing the Workplace for Coronavirus

TIME FOR RADICAL ACTION

LESSON # 1: MULTI-DISCIPLINARY APPROACH



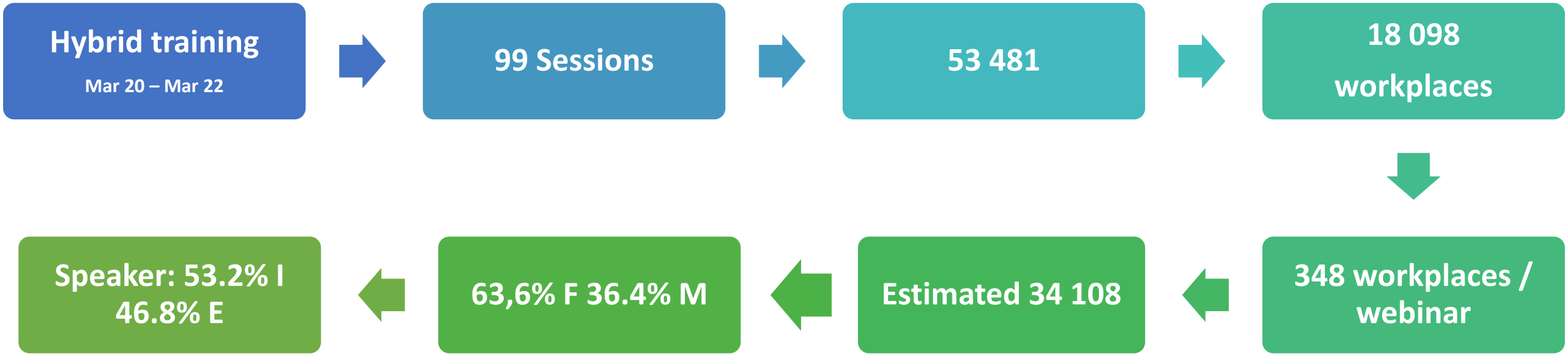
LESSON # 2: IMPORTANCE OF STAKEHOLDER ENGAGEMENT



LESSON # 3: Lack of knowledge & access to information

- Raise awareness of COVID-19 in workplaces across various sectors (public & private)
- Promote workplace preparedness and prevention before, during and after the various stages of lockdown
- Capacitate participants in the hope that workplaces will take initiative to assess change subsequent to participation in training
- Genesis of NIOH COVID webinar series
- Digital platforms: Zoom, MST, Youtube
- Varied topics depending on pandemic trends
- Training resources
- Q&A: Panellists
- Online survey
- CDP accreditation for leading professional bodies &
- Online MCQs & certificates of attendance

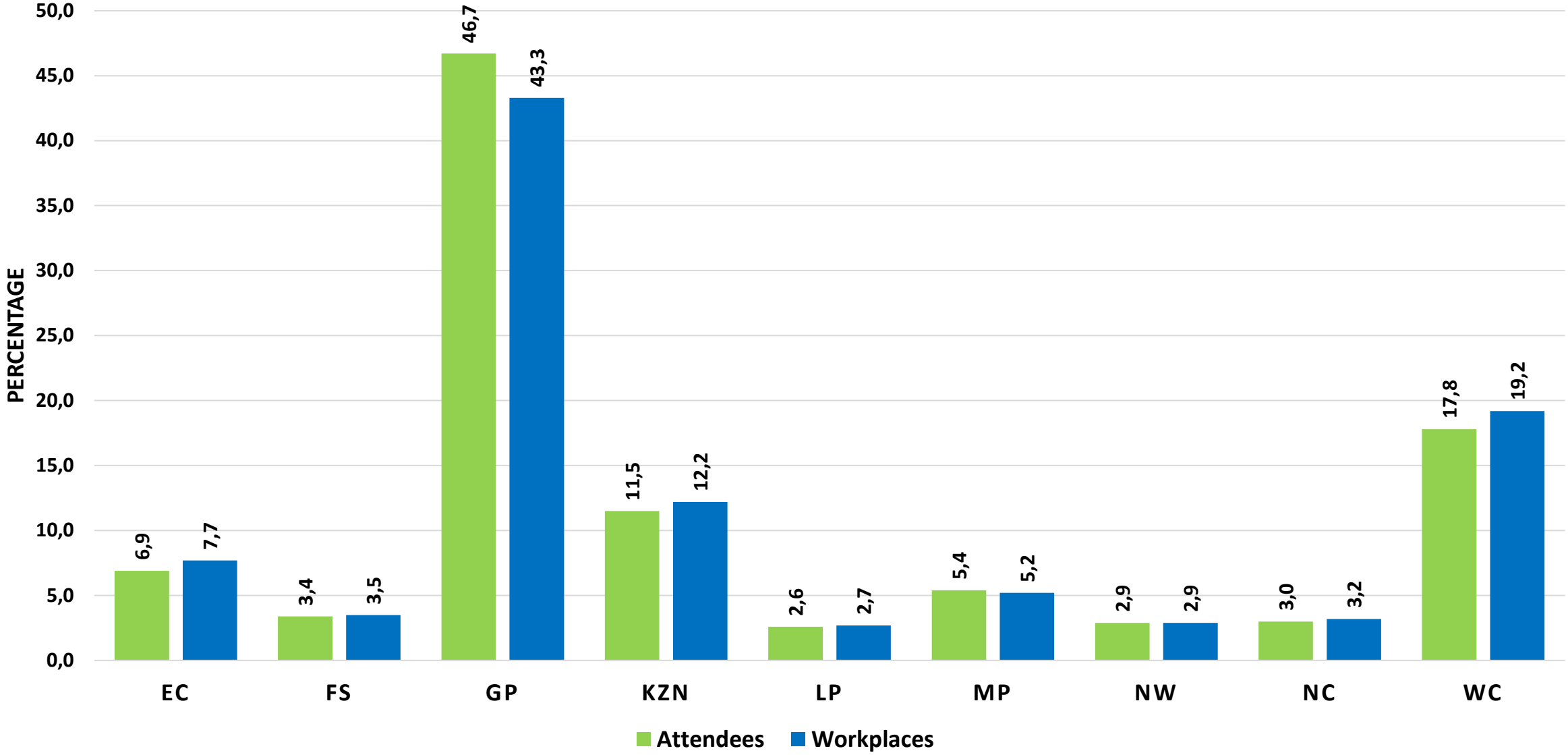
NIOH COVID-19 webinars



Speakers	No.	Speakers	No.
Private consultants	14	NGO/NPO	6
International	2	Public Sector	94
Higher Education Institutions	14	Private Sector	11
Trade Unions	3	Professional bodies	10
Employment/Labour lawyers	2	Regional	2
Total			**158**

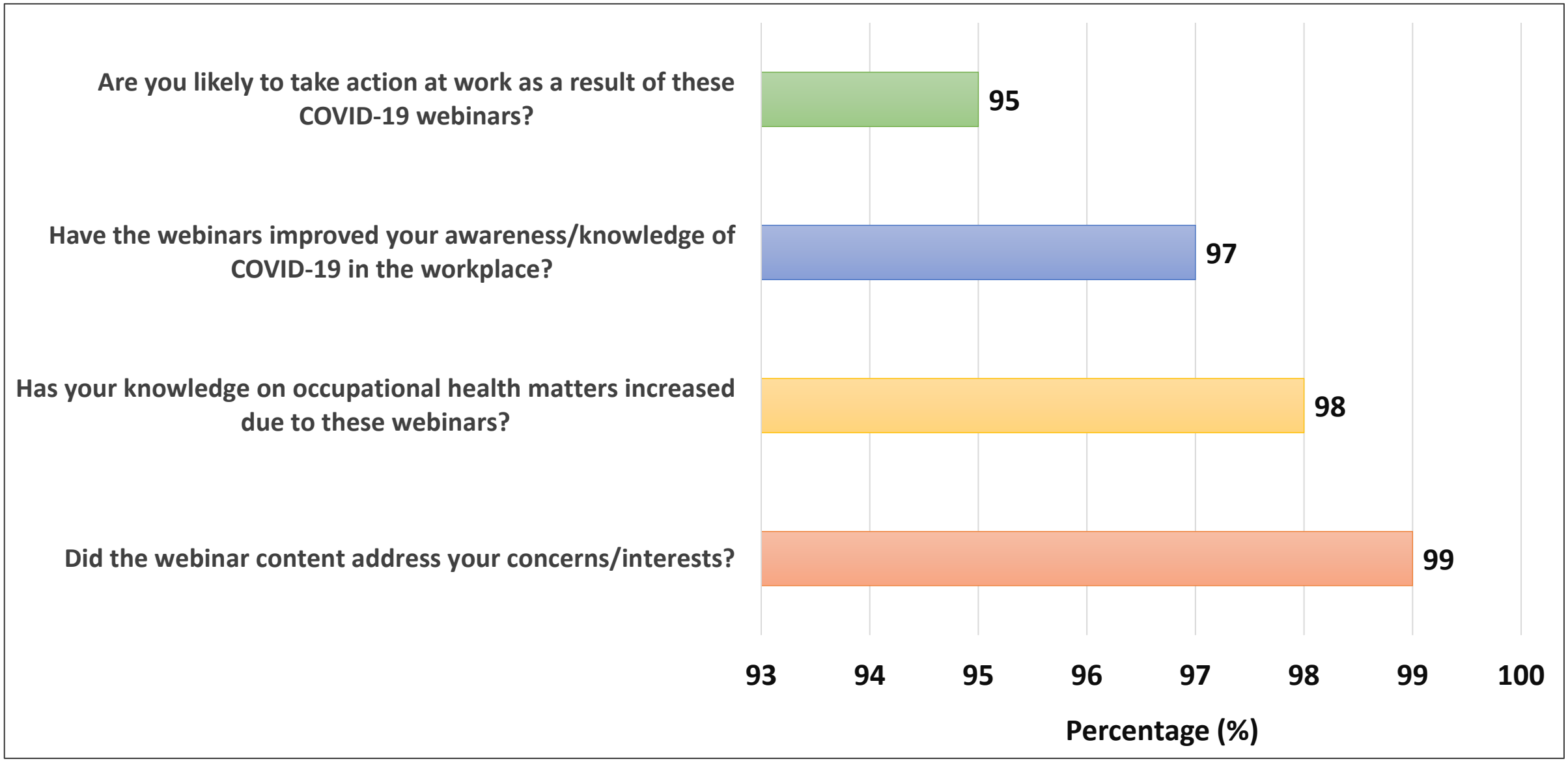
Figures based available data

NIOH COVID-19 WEBINARS: PROVINCIAL DISTRIBUTION



Figures based available data

WEBINAR SURVEY



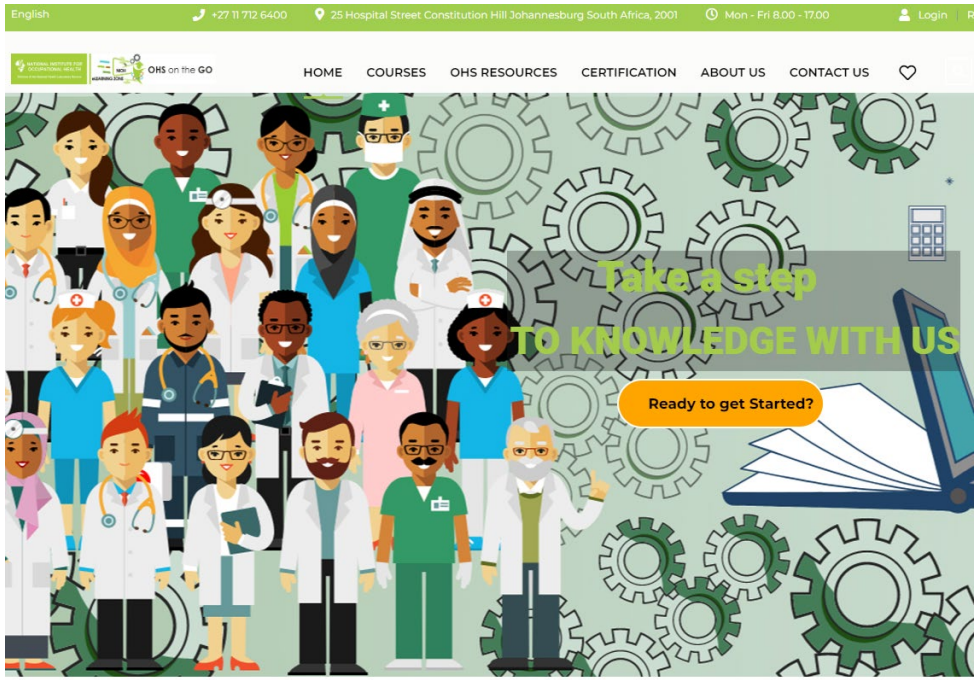
Figures based available data

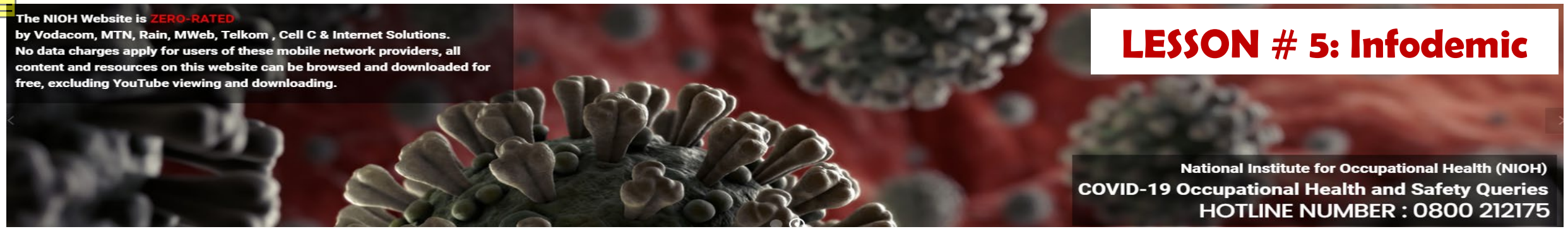
LESSON # 4: Strengthening capacity

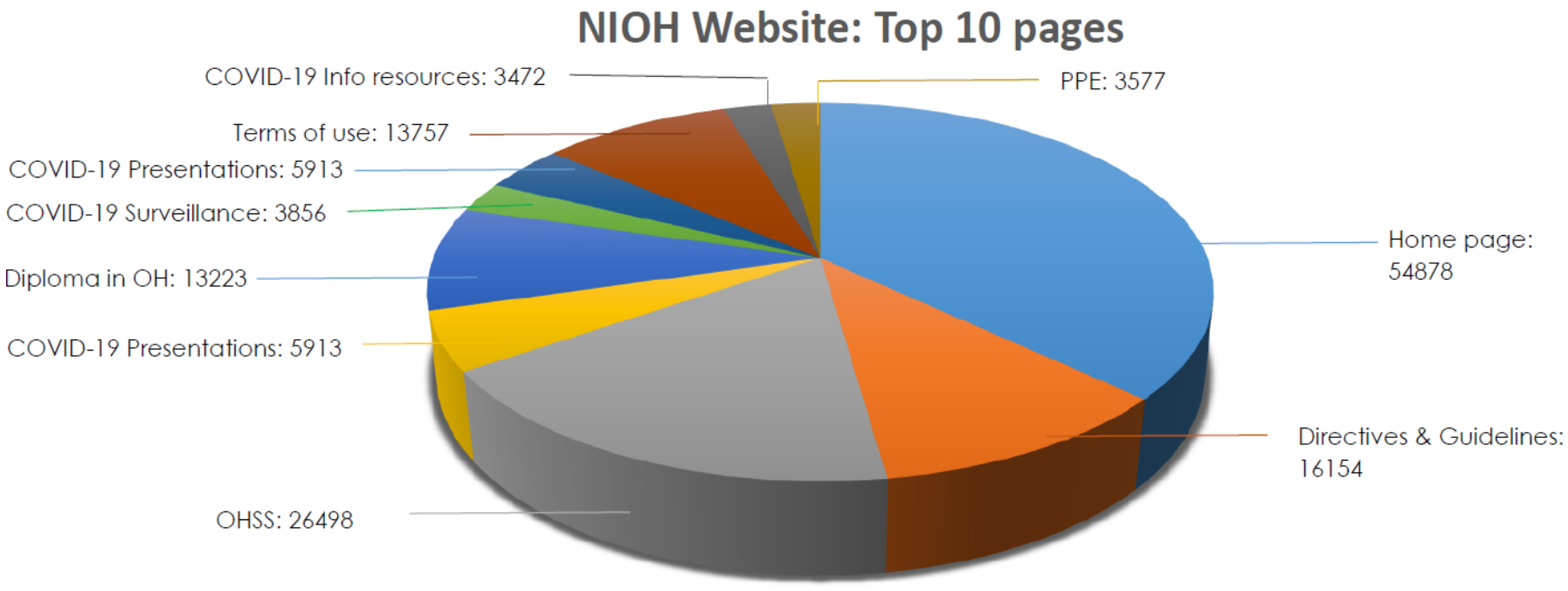
- Two new qualifications
- eLearning Management System
- NIOH accredited

Qualification / Programme Title	NQF Level	ID	Min credits
Workplace Preparedness & Risk Control **Officer**: Communicable & Occupational Diseases	04	SP-191224	05
Workplace Preparedness & Risk Control **Assistant**: Communicable & Occupational Diseases	03	SP-191223	03

Qualifications Council for Trades and Occupations – approved skills programme



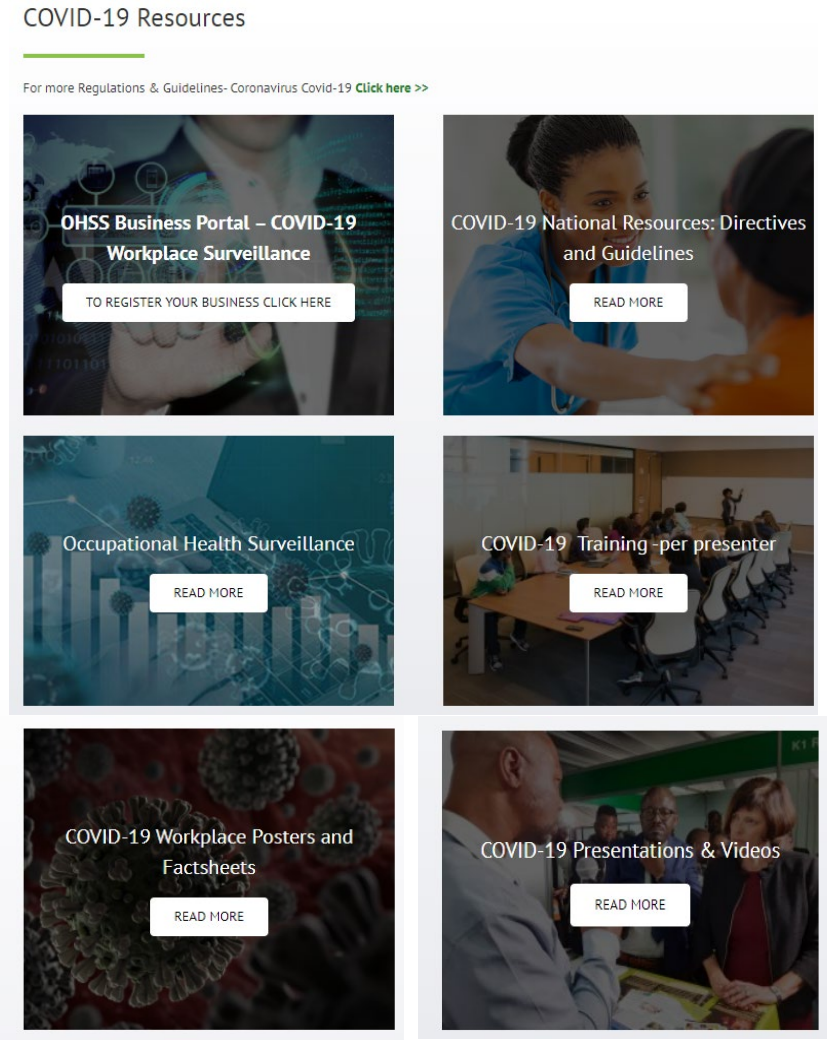




www.nioh.ac.za

Top 10 Countries			
1		South Africa	60384
2		United States	3484
3		United Kingdom	1548
4		India	991
5		China	588
6		Germany	484
7		Finland	273
8		Netherlands	281
9		Canada	213
10		Austria	143

Botswana, Philippines, Brazil, **Zimbabwe**, Indonesia, Australia, **Namibia**, Nepal, Ireland, **Nigeria**, **Ghana**, unknown (382) **-11%**



NATIONAL DEPARTMENT OF HEALTH (NDoH) OH WORK-STREAM GUIDANCE DOCUMENTS

- Guidance notice: Return to work of vulnerable employees (10 November 2020)
  - *Anexure A: Classification of risk based on exposure and district positivity rates*
  - *Annexure B: List of vulnerable employees*
- NDoH OH Workstream: Guideline on the submission of COVID-19 related health data from workplaces to National Department of Health (Version 6: 12 November 2021)
- NDoH OH Workstream: Guidelines for ventilation to prevent the spread of the SARS-CoV-2 virus (Version 1: 15 August 2021).
- NDoH OH Workstream: Guidelines for symptom monitoring and management of workers for SARS-CoV-2 infection (Version 7: 10 August 2021)
- NDoH OH Workstream: Guidance note for workplaces in the event of identification of a COVID-19 positive employee (Version 5: 14 May 2020)
- NDoH OH Workstream: Cleaning and Decontamination of Workplaces in the Context of Covid-19 (Version 2: 10 August 2021)
- NDoH OH Workstream: Guidance on vulnerable employees and workplace accommodation in relation to COVID-19 (Version 4: 25 May 2020)
- NDoH OH Workstream: Disinfection tunnels and spray booths in the context Of Covid-19 (4 June 2020)
- NDoH OH Workstream: Psychosocial support for health workers during the Covid-19 response. (May 2020)

NDoH OH WORK-STREAM – TOOLS AND TEMPLATES

- NDoH OH Workstream: COVID-19 Walk-through Risk Assessment, 1 May 2020
- NDoH OH Workstream: Worker COVID-19 Risk Assessment, Ver. 1, 17 April 2020
- NDoH OH Workstream: Specialised health risk assessment for workplaces (by employers and self-employed persons), Ver. 1, 1 May 2020

DIRECTIVES ON OHS & COID – Department of Employment and Labour (D0EL)

- AMENDMENT: Consolidated Direction on Occupational Health and Safety Measures in Certain Workplaces, 11 June 2021
- COVID -19 Temporary Employee / Employer Relief Scheme(C19 TERS) Direction, 08 April 2021
- Consolidated Direction on Occupational Health and Safety Measures in Certain Workplaces, 28 September 2020
- Direction extending COVID-19 TERS Benefits for certain categories of employee, 7 September 2020
- Directive on Compensation for Workplace-acquired Novel Coronavirus Disease (COVID-19) – GGMNo43540, 23 July 2020
- Workplace Preparedness: COVID-19 (SARS-CoV-19 virus) – Department of Employment & Labour. (22 March 2020)

DISASTER MANAGEMENT ACT – Department of Cooperative Governance and traditional Affairs

- Adjusted Alert Level 1 Lockdown, 1 February 2022
- Adjusted Alert Level 1 Lockdown, 30 December 2021
- Adjusted Alert Level 1 Lockdown, 30 September 2021
- Adjusted Alert Level 2 Lockdown, 12 September 2021
- Adjusted Alert Level 3 Lockdown, 25 July 2021
- Adjusted Alert Level 4 Lockdown, 27 June 2021
- Adjusted Alert Level 3 Lockdown, 15 June 2021
- Adjusted Alert Level 2 Lockdown, 30 May 2021
- Adjusted Alert Level 3 Lockdown, 11 January 2021

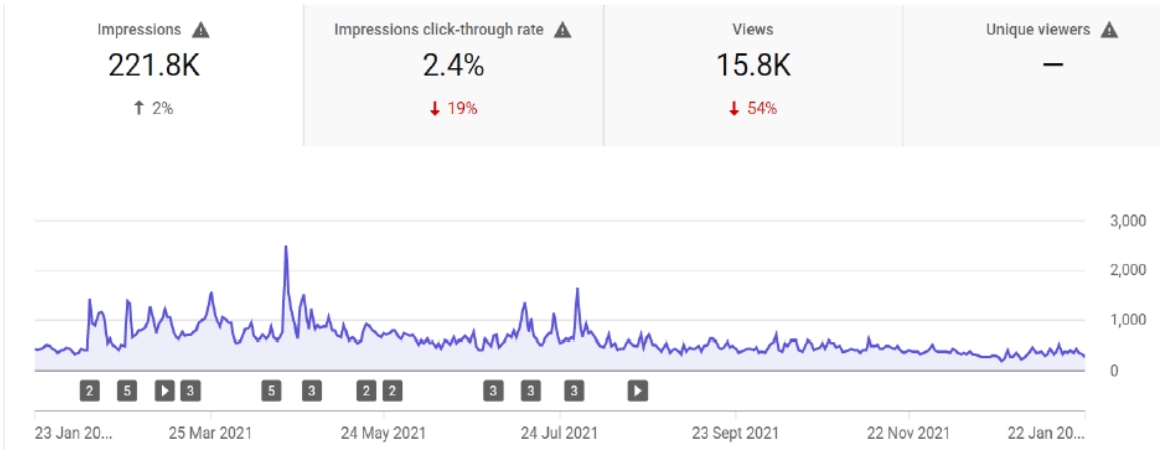
LESSON # 6: Information dissemination reaching those who need it most

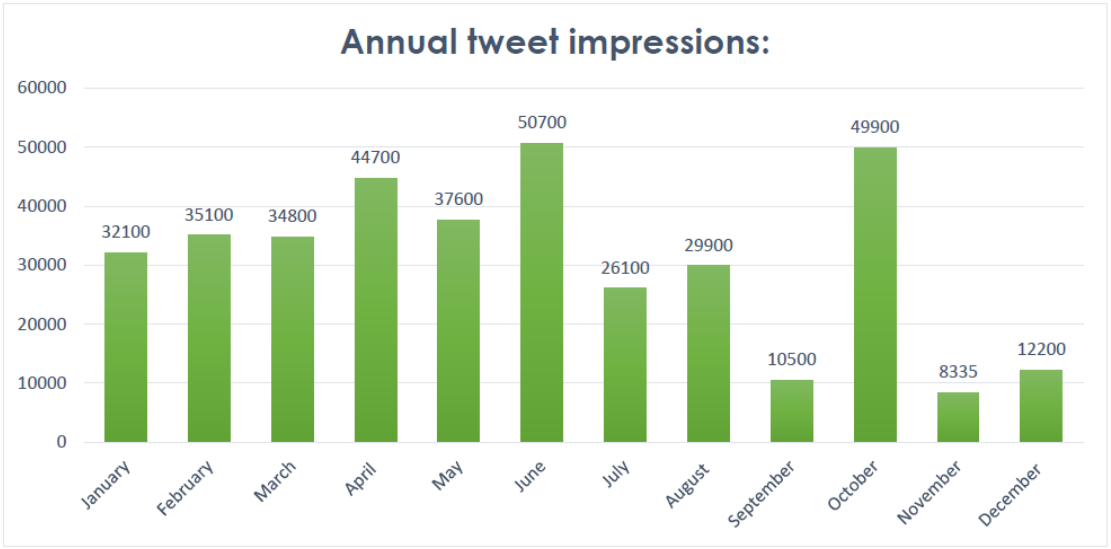
- Dissemination of timely & accurate information
- 44 posters & fact sheets – review (68%)
- 4x Indigenous languages, SASL, Braille
- OccuZone, mainstream print & electronic media
- Opinion editorials
  - Occupational Health Surveillance System (OHSS)
  - Power FM interview on OHSS with Dr Nisha Naicker
  - Ford Donation media drive
  - Women's Day OHORT profile
  - Long COVID and the implications on workplaces: Outlook SA magazine
  - How COVID-19 opened the door to a neglected and undervalued Occupational Health sector
  - COVID-19: How can employers support workers and communities with mental health issues
  - Crisis communication letter over the publication of inaccurate and misinformation on News24

LESSON # 7: Digital footprint

- Organic growth
- Data from multiple SS in public and private sectors is used to monitor trends in the disease,

YouTube Reach (over the 12-month period):

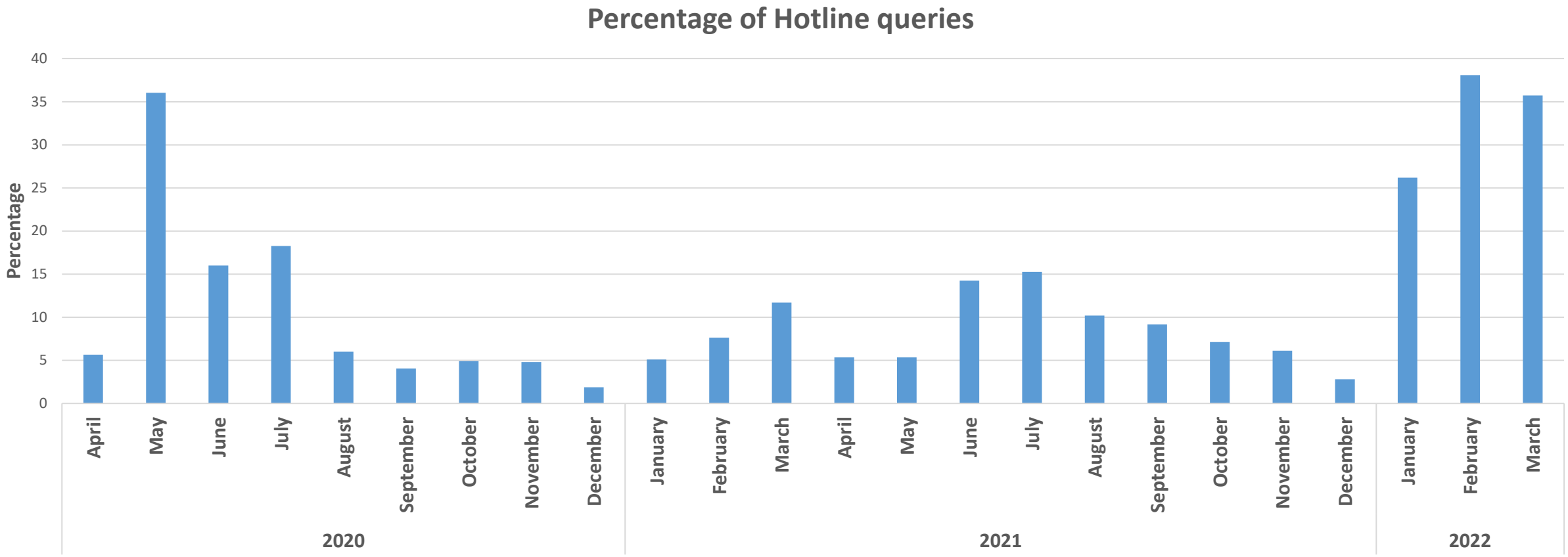




TOTAL TWEET IMPRESSIONS IN PAST 365 DAYS: 371 935

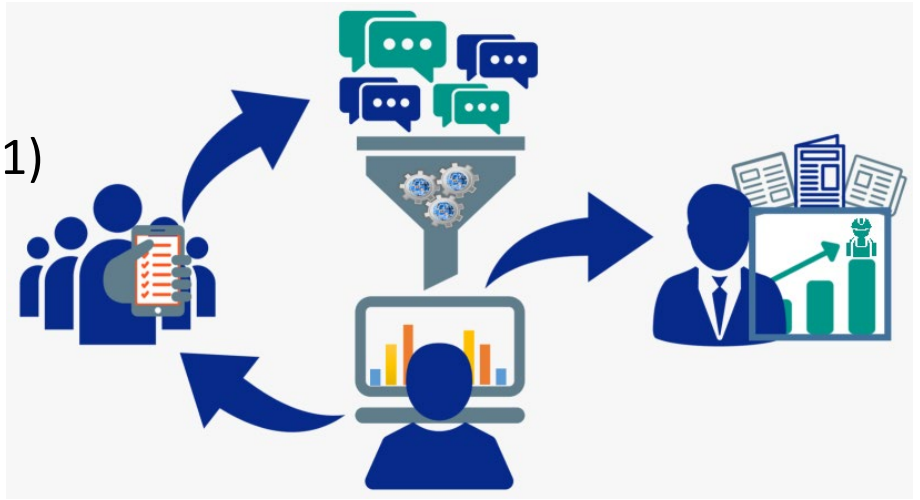
LESSON # 8: Being accessible

- Advisory services
- COVID-19 Workplace Hotline
- info@nioh.ac.za
- FAQs & training topics



LESSON # 9: Lack of surveillance data

- Planning, implementing and evaluating workplace interventions
- Data from multiple SS in public and private sectors is used to monitor trends in the disease, identify workplace risk factors and design effective intervention strategies.
- **Occupational Health Surveillance System (OHSS)**
  - NIOH, NDOH, NICD, CSIR embarked on the project
  - 5653 business registrations
  - Training ongoing – highlighting the importance of submitting data
- **HCW admissions (DATCOV)**
  - Monthly surveillance reports (2021 – 52 reports & 2022 week 11)
- **NHLS COVID-19 weekly reports**
  - OHASIS report
- **SACCESS Network, SA**
  - Contributes to the wastewater-based epidemiology for SARS-CoV-2 Surveillance



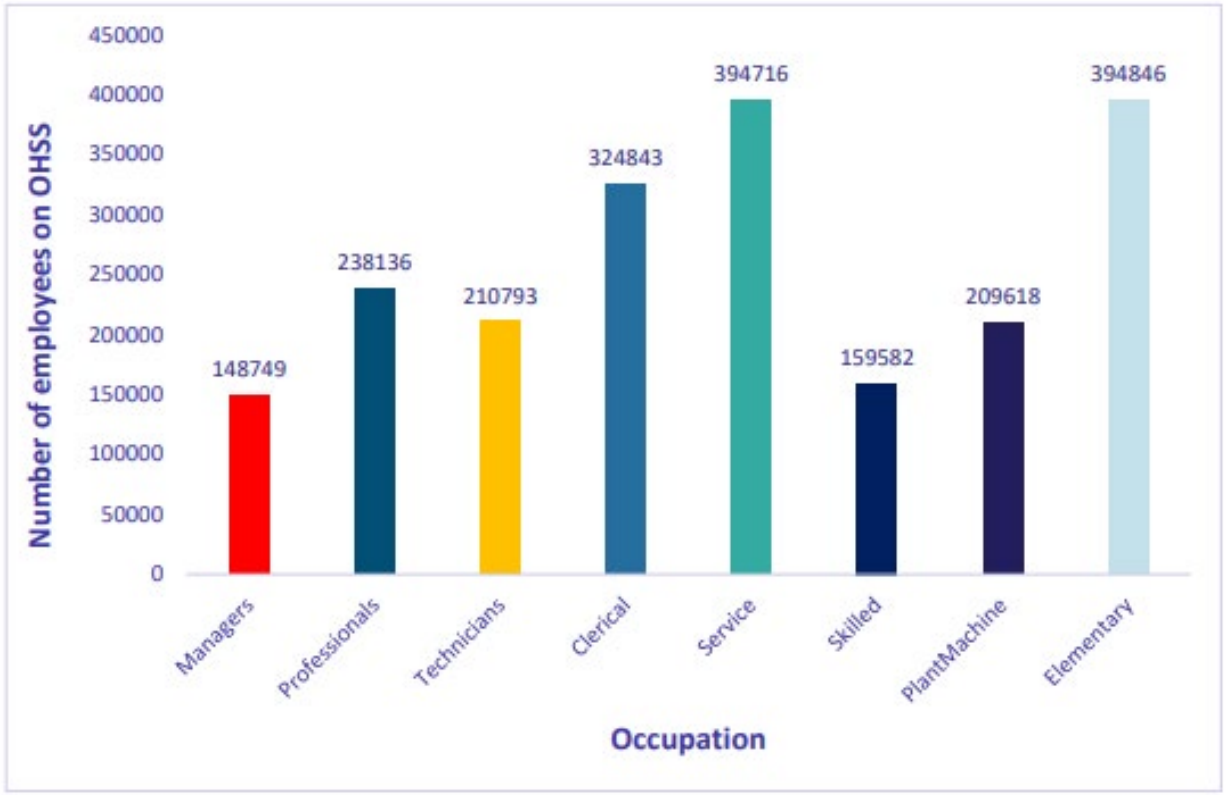
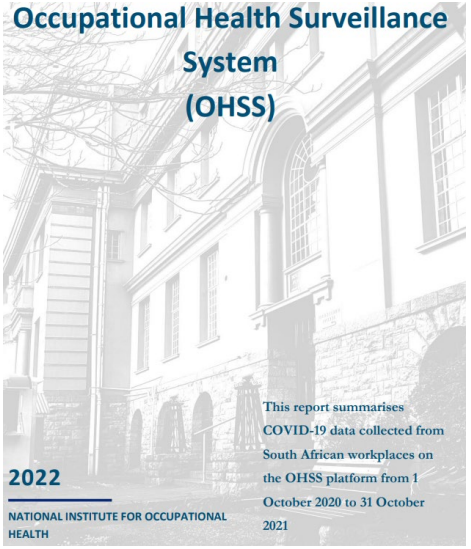


Figure 3: Number of employees per occupational group registered on the OHSS platform



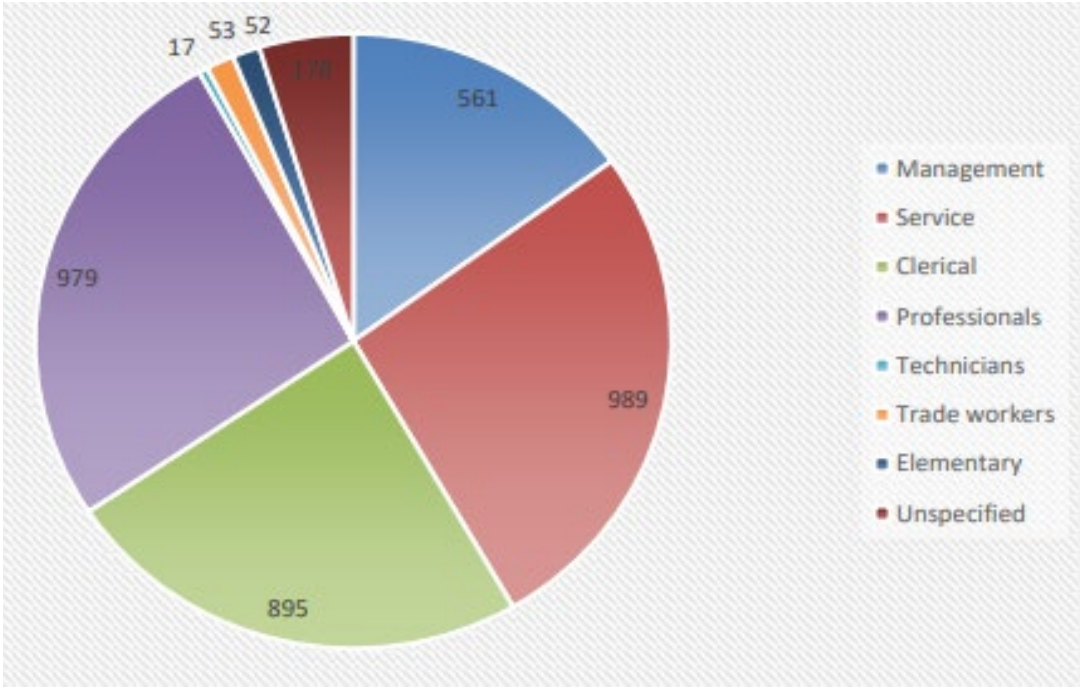


Figure 7: Number of COVID-19 positive cases reported on the OHSS in different job categories (n = 3,724).

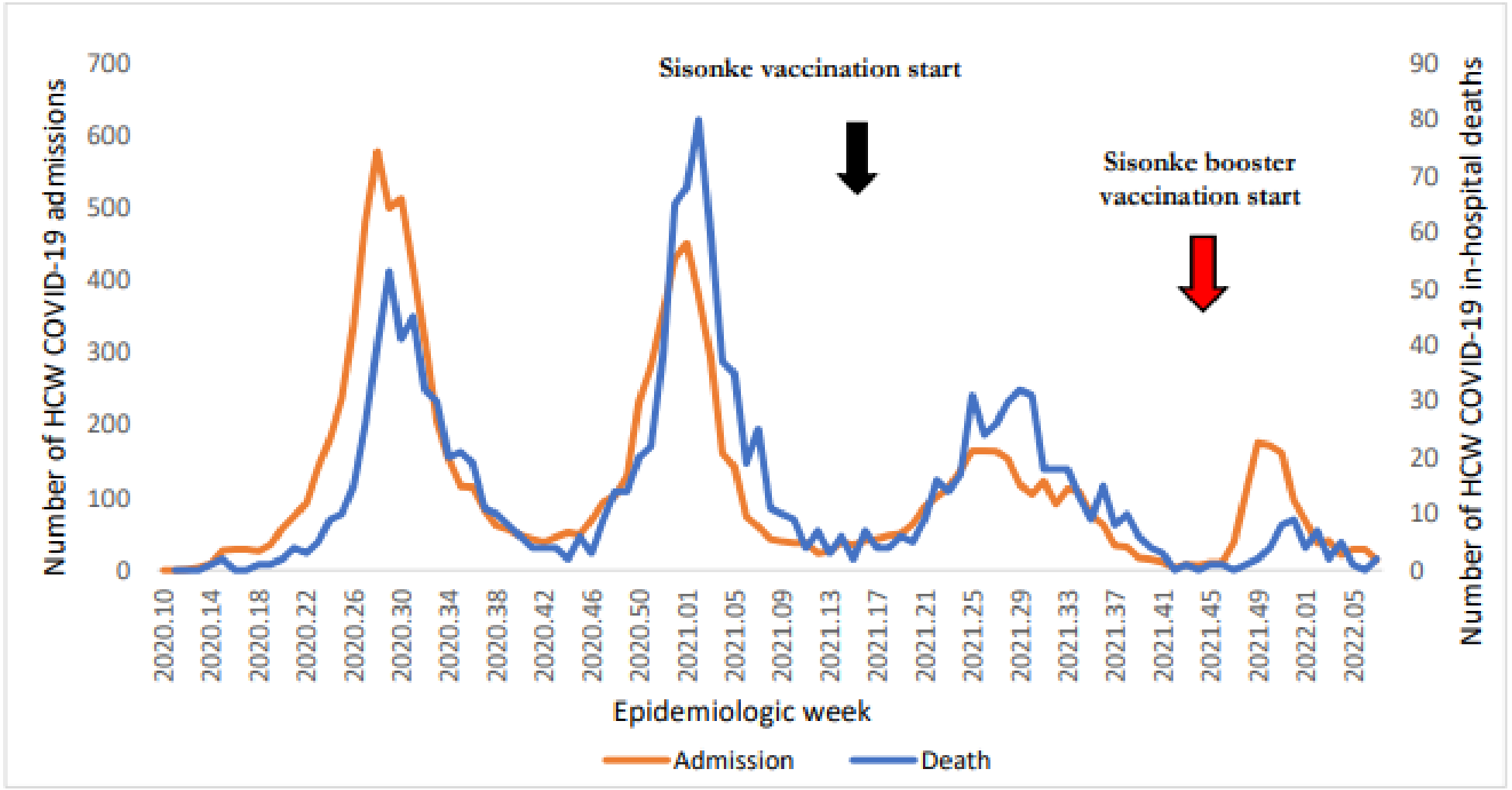
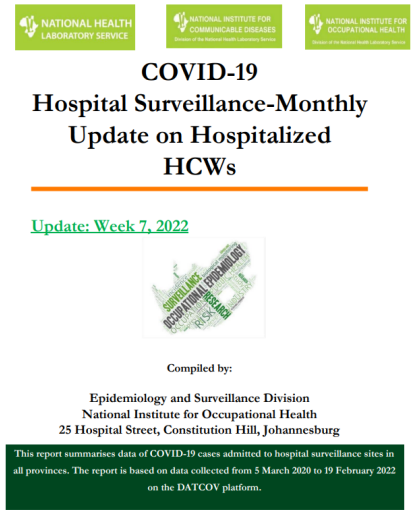


Figure 6: Number of COVID-19 HCW admissions and in-hospital mortality across South Africa, 5 March–19 February 2022.



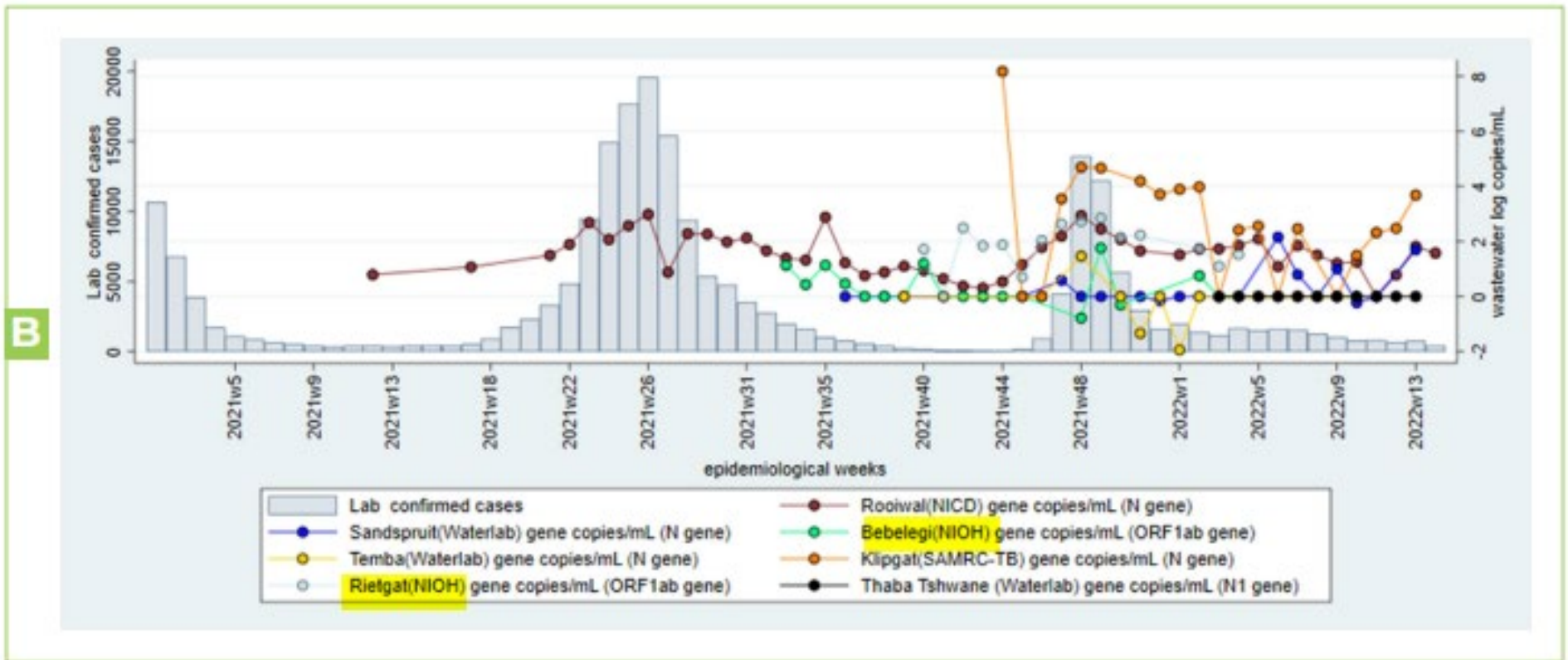
2021 – week 50 | 2022 – week 7

Wolter et al, 2022

WASTEWATER-BASED EPIDEMIOLOGY FOR SARS-COV-2 SURVEILLANCE IN SOUTH AFRICA

WEEK 14 2022

B: City of Tshwane North (sub-districts 1 & 2)



LESSON # 10: Paucity of Research

1. High-touch surfaces in taxis (CSIR, NIOH-OccMed, SANTACO, NDOH)
2. Alcohol content in hand sanitizer (Analytical Services)
3. Rapid Appraisals for the healthcare workers (TB/HIV)
4. Mental health review among health workers (Epidemiology)
5. Validation of decontamination methods for filtering facepiece respirators (Immunology & Microbiology, Occupational Hygiene, SHE, CSIR, NICD, UCT)
6. Assessing the presence SARS-CoV-2 in wastewater and implications for workers' health at three WWTPs in Gauteng, South Africa (Immunology & Microbiology)
7. Investigating the role of telecommuting and its impact on organisational performance (Immunology & Microbiology)
8. Risk assessments in the NHLS mobile vans (Occupational Hygiene)
9. Airborne transmissibility study (Immunology & Microbiology)
10. Skin disorders associated with PPE use during COVID-19 (Immunology & Microbiology)

RESEARCH Open Access

Organizational factors associated with health worker protection during the COVID-19 pandemic in four provinces of South Africa

Muzimkhulu Zungu[1,2*], Kuku Voyi[2], Nosimilo Mlangeni[1], Saiendhra Vasudevan Moodley[2], Jonathan Ramodike[1,2], Nico Claassen[2,3], Elizabeth Wilcox[4], Nkululeko Thunzi[1,5], Annalee Yassi[4], Jerry Spiegel[4] and Molebogeng Malotle[1]

Abstract

Background: Health workers, in
SARS-CoV-2 infection. This study
SARS-CoV-2 infection.

Methods: This was a cross-sectio
Africa. A semi-structured questior
carried out to collect data on occ
identify factors associated with h
World Health Organization (WHO
We used logistic regression to an
of protective measures.

Results: We found that health fa
no comprehensive OHS plan for
organized to respond: Provinces
budget for occupational health; F
occupational health nurse; Provin
conducted some health risk asse
an acceptable HealthWISE compli
measures. While the supply of pe
study found that having an OSH
equipment and ventilation scores
scores had significantly lower infe

OPEN

Assessment of quality of alcohol-based hand sanitizers used in Johannesburg area during the CoViD-19 pandemic

Puleng Matatiele✉, Bianca Southon, Boitumelo Dabula, Talulani Marageni, Poobalan Poongavanum & Boitumelo Kgarebe

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 flame 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 identified. 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.

The gold standard for hand hygiene and prevention of the spread of non-airborne infectious diseases is regarded as washing with warm water and soap, because water and soap remove oils from hands that can harbour pathogens[1]. However, in the absence of water, hand sanitizers are recommended[2,3]. The transmission of respiratory pathogens spread by droplet or airborne routes is limited through respiratory hygiene/cough etiquette and physical space infection prevention measures[4,5].

Since the outbreak of SARS-CoV-2, CoViD-19 (coronavirus), it is recommended by the World Health Organisation (WHO) that, in absence of water, the use of alcohol-based hand sanitizers can prevent the transmission of coronavirus[6]. Consequently, the demand for hand sanitizers has increased worldwide including South Africa, resulting in a surge in the trade of hand sanitizers and initially leading to shortages in their supply.

Hand sanitizer formulations exist in the form of liquids, gels and foams. Depending on the active ingredient used, hand sanitizers can be classified as one of two types: alcohol-based and alcohol-free. Alcohol-based hand sanitizers are recommended for general use, whereas the alcohol-free ones are not[7,8]. Hand sanitizers with less than the recommended alcohol content (60–95% alcohol) have been found not to work well for many types of pathogens, in that they may merely reduce their growth rate and hence reduce their numbers rather than kill them outright[9,10].

Alcohol-based hand sanitizers are available in the form of rinses (liquid) and rubs (gel, foam and cream), and both are effective agents for reducing the number of viable pathogens, including coronavirus, on hands. Alcohol-based hand sanitizers may contain a variety of alcohols [e.g., isopropyl alcohol (isopropanol, 2-propanol), ethanol (ethyl alcohol), *n*-propanol (1-propanol)] or a combination of two of these, including other ingredients[11–14].

For alcohol-based hand sanitizers, the US Centres for Disease Control and Prevention (CDC) recommends a concentration of 60–95% ethanol or 2-propanol mixed with distilled water[15]. Alcohol acts on microbes in the presence of water by making the organism cell membrane permeable leading to cytoplasm leakage, denaturing of proteins and eventually, cell lysis[12]. At higher concentrations (> 95%) alcohol is not effective since microbial

Analytical Services, National Institute for Occupational Health, National Health Laboratory Service, P.O. Box 4788, Johannesburg, South Africa. ✉email: PulengM@nioh.ac.za

doi:10.1093/occmed/kqaa081

COVID-19: an occupational health view from South Africa

At the 2009 Cape Town ICOH Congress, Professor Barry Schoub, then Director of our National Institute for Communicable Diseases (NICD) declared that, 'Two of the most serious public health concerns of the 21st century are the threat of pandemic influenza and

National Institute
e divisions within
ce (NHLS) which,
2020 prior to our
Italy on 5 March

equipment (PPE). However, ongoing research advantageous to South Africa is exemplified by the reuse of respirators now being explored due to critical shortages during emergencies, although handwashing and social distancing remain the mainstay.

The NIOH is playing an important role in online training, following current epidemiology and evidence-based best practice, providing an advisory hotline for occupational health practitioners, and initiating local databases and research to protect workers' health

Impact of level five lockdown on the incidence of COVID-19: lessons learned from South Africa

Felix Made, Wells Utembe, Kerry Wilson, Nisha Naicker, Nonhlanhla Tlotleng, Simbulele Mdleleni, Lusanda Mazibuko, Vusi Ntlebi, Phuti Ngwepe

Corresponding author: Felix Made, Epidemiology and Surveillance Section, National Institute for Occupational Health, National Health Laboratory Service, Johannesburg 2000, South Africa. FelixM@nioh.ac.za

Received: 03 Feb 2021 - **Accepted:** 19 Apr 2021 - **Published:** 23 Jun 2021

Keywords: Basic reproductive number, laboratory confirmed cases, estimated cases, forecast cases

Cite this article: Felix Made et al. Impact of level five lockdown on the incidence of COVID-19: lessons learned from South Africa. Pan African Medical Journal. 2021;39(144). 10.11604/pamj.2021.39.144.28201

Available online at: https://www.panafrican-med-journal.com//content/article/39/144/full

Impact of level five lockdown on the Incidence of COVID-19: lessons learned from South Africa

Felix Made[1,2,&], Wells Utembe[3,4], Kerry Wilson[1], Nisha Naicker[1,2,4], Nonhlanhla Tlotleng[1,2], Simbulele Mdleleni[1,2], Lusanda Mazibuko[1], Vusi Ntlebi[1], Phuti Ngwepe[5]

[1]Epidemiology and Surveillance Section, National Institute for Occupational Health, National Health Laboratory Service, Johannesburg 2000, South Africa, [2]Faculty of Health Sciences, School of Public Health, University of Witwatersrand, Johannesburg 2000, South Africa, [3]Department of Toxicology, National Institute for Occupational Health, National Health Laboratory Service, Johannesburg 2000, South Africa, [4]Department of Environmental Health, Faculty of Health Sciences, University of Johannesburg, Johannesburg 2000, South Africa, [5]Foundation for Professional Development, Pretoria, South Africa

[&]**Corresponding author**
Felix Made, Epidemiology and Surveillance Section, National Institute for Occupational Health, National Health Laboratory Service, Johannesburg 2000, South Africa

COVID-19 pandemic: workplace readiness to control and contain the spread of coronavirus

TS Singh[1,2], DO Matuka[1,2], M Muvhali[1], T Duba[1]

1. National Institute for Occupational Health (NIOH), National Health Laboratory Service (NHLS), Johannesburg, South Africa
2. Department of Clinical Microbiology and Infectious Diseases, School of Pathology, University of the Witwatersrand, Johannesburg, South Africa

Correspondence: Dr Tanusha Singh, National Institute for Occupational Health, PO Box 4788, Johannesburg, 2000,

ABSTRACT

The coronavirus outbreak has been declared a pandemic by the World Health Organization. It is a huge concern to both public and occupational health and is the biggest current threat to the global economy and financial markets. The aim of this paper is to highlight the key occupational health challenges based on available literature and to provide some guidance on preventive measures. A literature search was conducted on PubMed and Google for studies published from January to March 2020. Google translate was used for articles in foreign languages. The literature showed that healthcare workers are a high-risk group, although any worker is at potential risk. The key challenges identified relate to labour rights and sick leave, compensation, impact of quarantine on business continuity, and whether transmission is purely through droplets or if airborne transmission plays a role. The evidence, although limited, provides guidance for slowing down and reducing the risk of spread of the virus.

be determined.[2,7-9] The main route of transmission is person-to-person through respiratory droplets (coughing, sneezing, talking) and close contact (proximity of ≤ 1 metre) to an infected person.[2,3,10-13] The expelled infectious droplets may land on objects in the workplace, such as tables, desks or equipment. Workers might touch these contaminated surfaces and then touch their eyes, noses or mouths, which are entry points for the virus.[7] The reproductive number for the coronavirus is 2.5 indicating that, on average, an infected individual infects at least two to three additional people. The risk of transmission from asymptomatic individuals, although low, has also been reported.[13-15]

SYMPTOMS ASSOCIATED WITH EXPOSURE TO SARS-CoV-2

The average incubation period is 5.2 days, ranging from two to 14 days from exposure to onset of symptoms.[9] The early clinical manifestation of COVID-19 is mild flu-like symptoms which can be followed by severe respiratory distress and pneumonia.[12,16] The typical symptoms include fever (> 38 °C), headache, dry cough, shortness of breath, malaise and sore throat.[8,12,16] Approximately 80% of persons present with mild to moderate disease (similar to the common flu or cold) and recover. Fifteen per cent of cases require hospital admission, and 5% of cases may become critically ill and require intensive care unit (ICU) admission; 3% might succumb to the infection.[17]

EPIDEMIOLOGY

From the onset of the outbreak in December 2019, until 24 April 2020, there have been 2 833 047 confirmed positive cases and 197 353 deaths across 210 countries around the world and two international conveyances (the *Diamond Princess* and MS *Zaandam* cruise ships). The infection is increasing daily due to the rapid spread of the virus and strained health systems, including lack of diagnostic capacity in many countries. Whilst the United States of America (USA) has the highest number of reported cases currently, Spain has been most affected by the outbreak. Spain

LESSON # 11: Adapt to the new normal

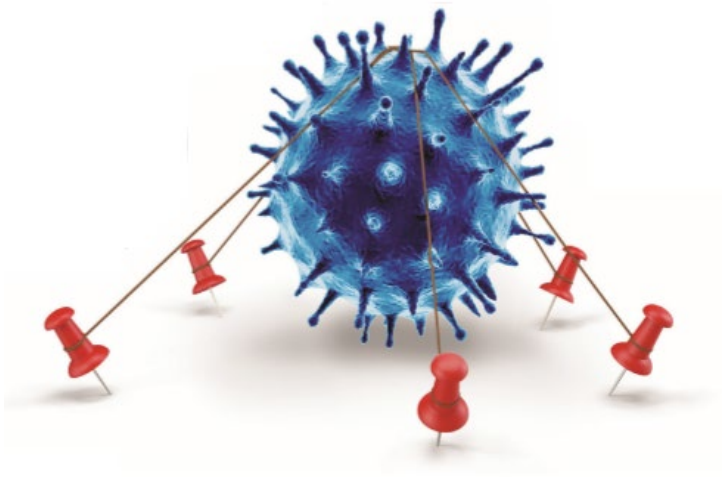
- Lockdown restrictions elicited the need to interrogate, adapt and change to the new way of working and interacting with others.
- Despite the challenges faced and the various waves, we found new ways of learning and interacting via online training.
- We adapted change and built the necessary resilience as a sector in terms of outbreak response
- Mental health resilience

KEY MESSAGES

- Given the rapidly evolving nature of the outbreak – all efforts took a reactive approach
- Reinforce the need to strengthen Occupational Health Systems
- The success of mitigating biological risks is underpinned:
  - Our resilience as a collective
  - Implementation on comprehensive OH principles (incl all hazards)
  - Review existing policies/procedures/RA
  - Stimulate research with identified priorities
  - Funding for a holistic approach risk management (context of outbreaks)
  - Enhance multiprofessional and multidisciplinary collaboration
  - Enthuse an ethical consciousness behaviour
  - Strengthen enforcement systems


OHORT
OCCUPATIONAL
HEALTH
OUTBREAK
RESPONSE TEAM

ACKNOWLEDGEMENT:



Special *Thank You!* to **ALL** contributors of the **O**ccupational **H**ealth **R**esponse to COVID-19