



# Preparing the Workplace for Coronavirus

## “Frontline workers” PPE use & Respirator fit testing

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# NHLS

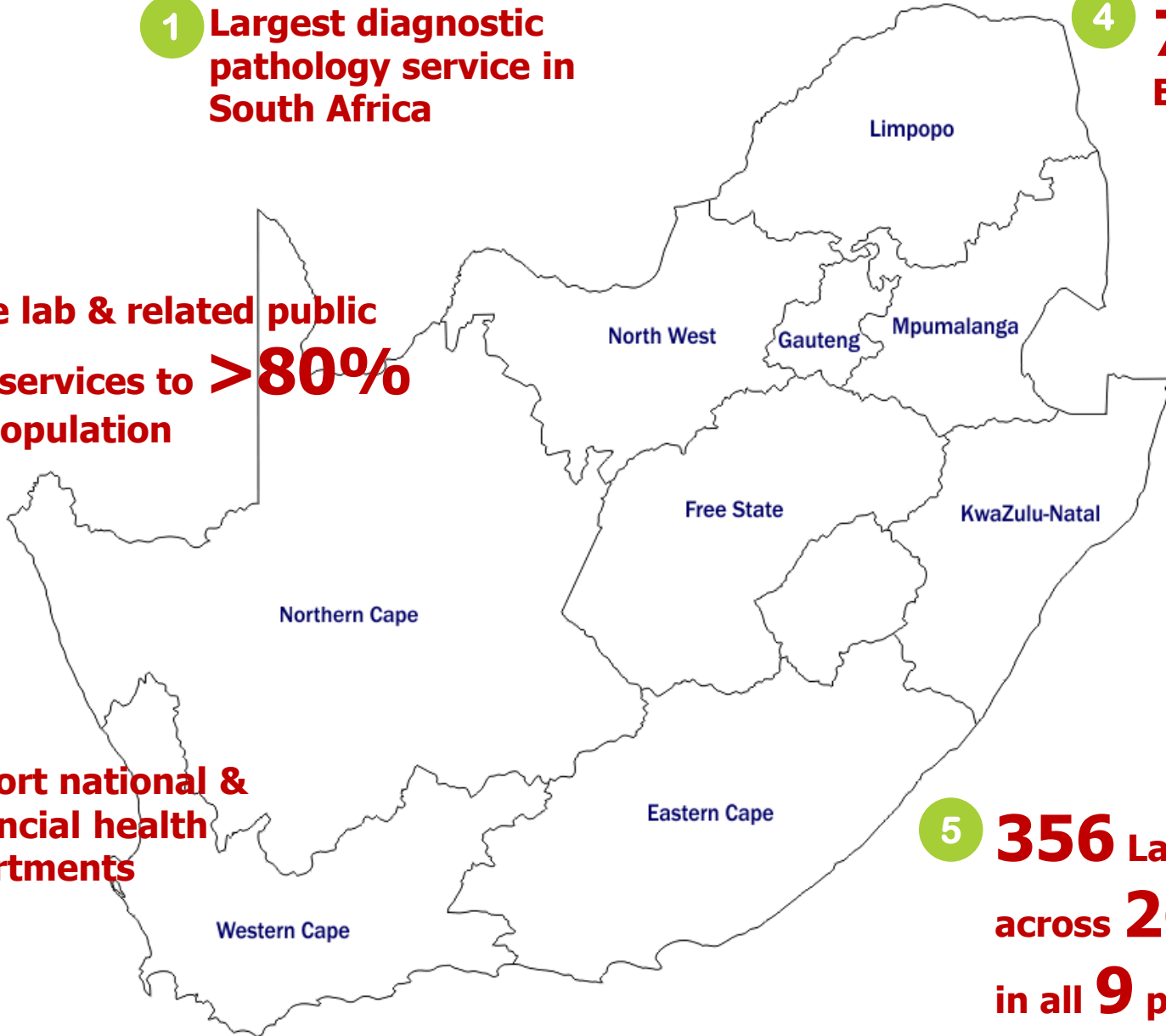
**1** Largest diagnostic pathology service in South Africa

**4** **7515** Employees

**2** Provide lab & related public health services to **>80%** of SA population

**3** Support national & provincial health departments

**5** **356** Laboratories across **260** sites, in all **9** provinces





NATIONAL INSTITUTE FOR OCCUPATIONAL HEALTH

Division of the National Health Laboratory Service

# Healthy, Safe and Sustainable Workplaces

## PROMOTING DECENT WORK THROUGH CUTTING EDGE RESEARCH SERVICE DELIVERY AND TRAINING



Improve and promote workers' health and safety



Catalyst for a mind set change towards greater prevention



Inform regulation, policy and standards



Public and private sectors of the economy



Formal and informal economies



## HOW TO STAY INFORMED:

### THIS SITUATION IS RAPIDLY EVOLVING

Please check for updates on the NICD, NIOH and NDOH websites

[www.nicd.ac.za](http://www.nicd.ac.za) | [www.nioh.ac.za](http://www.nioh.ac.za) [www.ndoh.gov.za](http://www.ndoh.gov.za)

Latest updated information on the spread of COVID-19

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>

Advice and guidance

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

[https://www.ilo.org/beijing/information-resources/public-information/WCMS\\_736744/lang--en/index.htm](https://www.ilo.org/beijing/information-resources/public-information/WCMS_736744/lang--en/index.htm)

# MITIGATION OF RISK IN THE WORKPLACE

## Primary prevention

- Business continuity and pandemic preparedness - Policies
- Minimise risks of transmission in the workplace. HRA including controls (Engineering, Administrative and **PPE**)
- Education and Training /HP (risk communication)

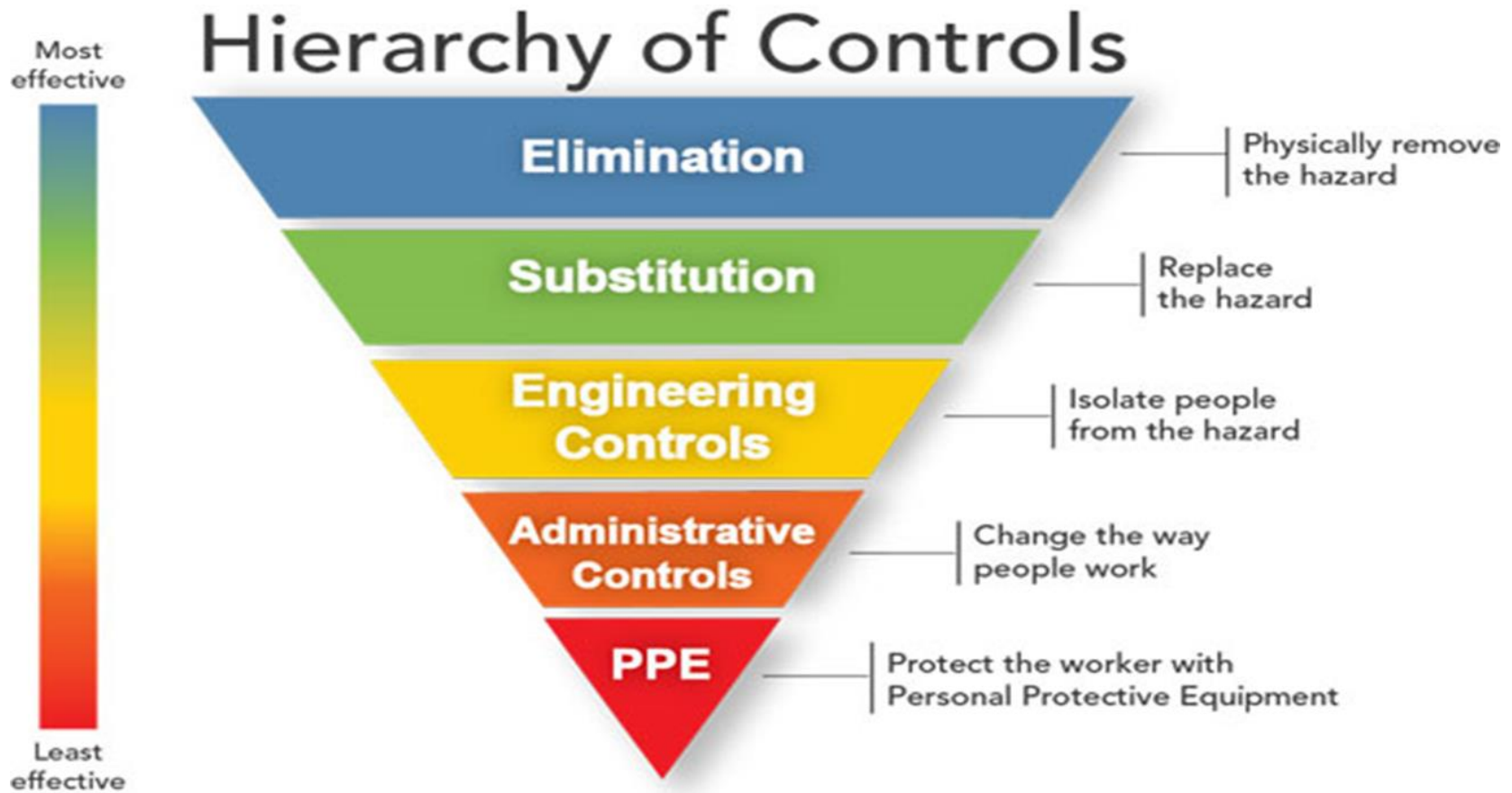
## Secondary Prevention

- Identify persons at risk early and respond appropriately
- Medical screening / Medical Surveillance / Treatment
- Quarantine
- Etc

## Tertiary prevention

- Rehabilitation
- Respond appropriately to a case of COVID amongst staff
- COIDA
- Leave etc

# Control of exposure



Source: NIOSH

# Control of infection



Source: Asian Pacific Journal of Oncology Nursing

# Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19)

Interim guidance  
27 February 2020



**World Health  
Organization**

**Table 1. Recommended type of personal protective equipment (PPE) to be used in the context of COVID-19 disease, according to the setting, personnel and type of activity<sup>a</sup>**

Setting	Target personnel or patients	Activity	Type of PPE or procedure
<b>Healthcare facilities</b>			
<b>Inpatient facilities</b>			
Patient room	Healthcare workers	Providing direct care to COVID-19 patients.	Medical mask Gown Gloves Eye protection (goggles or face shield).
		Aerosol-generating procedures performed on COVID-19 patients.	Respirator N95 or FFP2 standard, or equivalent. Gown Gloves Eye protection Apron
	Cleaners	Entering the room of COVID-19 patients.	Medical mask Gown Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes
	Visitors <sup>b</sup>	Entering the room of a COVID-19 patient	Medical mask Gown Gloves
Other areas of patient transit (e.g., wards, corridors).	All staff, including healthcare workers.	Any activity that does not involve contact with COVID-19 patients.	No PPE required
Triage	Healthcare workers	Preliminary screening not involving direct contact <sup>c</sup> .	Maintain spatial distance of at least 1 m. No PPE required
	Patients with respiratory symptoms.	Any	Maintain spatial distance of at least 1 m. Provide medical mask if tolerated by patient.



# PPE use & COVID-19

## Important considerations regarding the use of PPE

- Depend on the outcome of the risk assessment in relation to the job activities and the likelihood of exposure to COVID-19
- PPE should not be used in isolation
- Least desirable, but in practice most used control measures
- Unavoidable during emergency situations to supplement other controls (hierarchy)
- Select appropriate PPE in relation to the hazard route of transmission
- Should meet the design standards and specifications
- Compatibility with other PPE
- Proper fitting (fit testing- FFP2 / N95 FFR)
- Information and training
- Proper donning and doffing of PPE including proper sequencing
- Limitations of the PPE
- Proper care, maintenance and disposal of the PPE

# Supply of PPE

- Shortage of stock – minimise unnecessary use
- <https://www.sapema.org/members/>
- New supplier database –Department of small business development ( Nomantombi Mkaza [nmkaza@dsbd.gov.za](mailto:nmkaza@dsbd.gov.za) )
- New products (documentation to confirm performance requirements, specifications and standards of approval)
- Product marking
- SABS -SANS 1866-1&2
- South African homologation process
- National Regulator for Compulsory Specifications
- Protechnik (012 665 9444) can verify (EU certified respirators)

# Strategies of optimising the supply

- **Respirator re-use**
  - Manufacturer instruction : single use only
  - Resource constraints – RA to prevent contamination during multiple donning, extended use and storage
  - CDC strategy for optimising the supply of RPE - extended use but avoid discomfort
- WHO - Surgical masks should be available for patients with respiratory symptoms  
Not recommended for asymptomatic individuals to wear a mask
- Respirators are recommended for users in direct contact with the infection source or during aerosol generating procedures

*Disinfection of N95 respirators – validation of methods (ongoing)*

# RPE use & COVID-19

- **RPE use and effectiveness**
  - Difference between a mask (surgical mask) and respirator ( FFP2/N95 FFR )
  - Effective respiratory protection program (RPP)
  - **Elements** include policies, respirator selection, medical evaluation, training and *respirator fit testing*
- *Difference between seal check, **fit test** and filtration efficiency test*
  - It tests whether a specific type, model and size of respirator can adequately fit a specific individual
  - To confirm if the respirator provides a satisfactory fit or barrier between the user and an infection source
  - It also gives the employee confidence that they are protected by their supplied respirators
  - New hazard identified (corona virus)

# Respirator fit testing (cont)

- Qualitatively or Quantitatively
- Qualitative fit testing is currently recommended (CDC) since it minimises the destruction of N95 respirator used in fit testing.



# Factors affecting fit

- **Include**
  - Facial hair and beards Incorrect donning of a respirator
  - Incorrect respirator size or shape
  - Compatibility with other equipment
  - Multiple donning and doffing



# Limitations of PPE

- The hazard still exists
- Dependent on user's behaviour
- No one equipment to protect against every source of infection
- Should be properly used
- May restrict movement, dexterity, field of vision, communication, or comfort
- Should be properly maintained
- Requires regular training
- Improper use – false protection (exposure will exist even if wearing correct type for the hazard)

# Information sources

- World Health Organization. (2020). Rational use of personal protective equipment for coronavirus disease (COVID-19): interim guidance, 27 February 2020. World Health Organization. <https://apps.who.int/iris/handle/10665/331215>. License: CC BY-NC-SA 3.0 IGO (Accessed 5/03/2020)
- Jeanneth Manganyi, Kerry S. Wilson, David Rees .(2017). Quantitative respirator Fit, face Sizes, and determinants of fit in South African Diagnostic Laboratory Respirator Users, *Annals of Work Exposures and Health*. 61(9):1154-62.
- Centre for Disease control. (2018). Respirator Trusted-Source Information.//[www.cdc.gov/niosh/npptl/topics/respirators/disp\\_part/RespSource3fittest.html](http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/RespSource3fittest.html) (Accessed 5/03/2020)
- [Centre for Disease control. \(2020 \) Strategies for Optimizing the Supply of N95 Respirators https://www.cdc.gov/coronavirus/2019-ncov/hcp/checklist-n95-strategy.html](https://www.cdc.gov/coronavirus/2019-ncov/hcp/checklist-n95-strategy.html) (Accessed 8/03/2020)
- Cynthia Danisile Vuma, Jeanneth Manganyi, Kerry Wilson, David Rees The Effect on Fit of Multiple Consecutive Donning and Doffing of N95 Filtering Facepiece Respirators *Annals of Work Exposures and Health*, 2019, Vol. 63, No. 8, 930–936



# **If you suspect you have been exposed to COVID-19**

- ▶▶ Alert your supervisor and occupational health clinic immediately
- ▶▶ If you are experiencing symptoms, inform your health care provider about any contacts and recent travel to areas affected by COVID-19

Enquiries : [info@nioh.ac.za](mailto:info@nioh.ac.za)

**For more information contact NICD: 080 002 9999**

**[www.nicd.ac.za](http://www.nicd.ac.za) or [www.nioh.ac.za](http://www.nioh.ac.za)**