



NATIONAL INSTITUTE FOR
OCCUPATIONAL HEALTH

Division of the National Health Laboratory Service



The importance of respirator fit testing by Jeanneth Manganyi

Workplace Health Risk Assessment & PPE Effectiveness

NIOH WEBINAR -10 July 2020

Healthy, Safe, Happy & Sustainable Workplaces

PROMOTING DECENT WORK THROUGH CUTTING EDGE RESEARCH, SPECIALISED SERVICES, INFORMATION, TEACHING AND TRAINING



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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

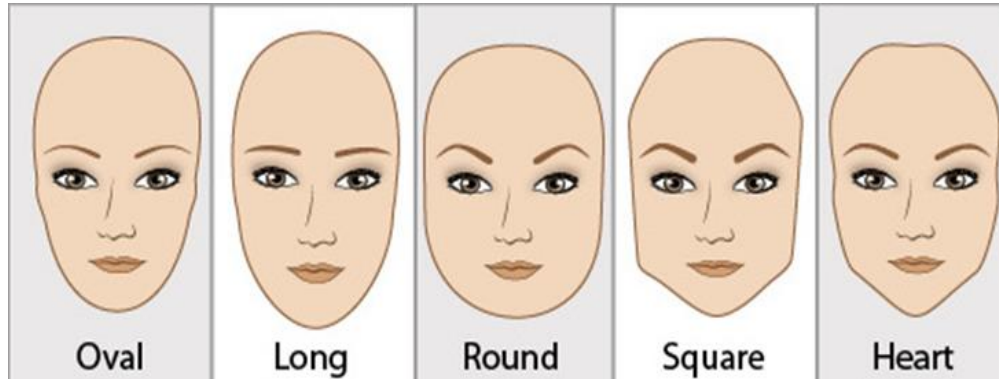


Formal and informal economies



Definition – Respirator fit testing

To determine if a specific respirator type, size and style fits a specific individual



Surgical masks v/s FFRs

Surgical Masks

- Designed to contain droplets from being expelled into the environment by the wearer/user during coughing, sneezing and talking
- Do not prevent leakages around the edges

Tight fitting respirators (e.g. FFRs)

- Designed to achieve a tight fitting face seal and provides a barrier between the user and contaminated environment
- Requires fit testing to confirm satisfactory fit
- User seal check is required whenever the respirator is put on
- **Performance of RPE- depends on filter efficiency, fit and proper use**

Respiratory protection program (RPP)

An effective RPP should include the following elements:

- A policy on respirator use
- Risk assessment – to identify potential inhalation exposure
- Medical evaluation of employees - to determine employees' ability to use respirators (before fit testing)
- Selection of correct type (hazard), size and style of respirators
- Training and information on the use and limitations of respirators
- Respirator fit testing
- Respirator maintenance and care, including the safe disposal of respirators

Legal requirements

HBA Regulations, OHSAct 85 of 1993

- The relevant RPE is capable of preventing/controlling exposure
- RPE is correctly selected and properly used
- Information, instructions, training and supervision
- The equipment is kept in good condition and efficient working order

NB RPP not included (some elements addressed)

Respirator fit testing is not explicitly mentioned

South African National Standards

- SANS 1866- 1 : 2018 Medical devices Part 1 : Medical face masks
 - SANS 1866-2: 2018 Medical devices Part 2 : [Medical respirators](#)
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Respirator fit testing methods



Qualitative or Quantitative

Quantitative

- TSI PortaCount Pro+ Model 8038



Factors affecting proper fit

- Beards and facial hair
- Facial deformities
- Improper donning of respirator
- Poor design of respirator
- Incorrect respirator size



Conclusion

Importance of respirator fit testing

- It is important that the respirator-user match is checked to avoid poor fit even if the user is wearing a respirator correctly selected for the hazard or purpose
- A proper fitting respirator will reduce exposure in respirator users thus minimising the potential for infection



Reference materials

- Introduction to respirator fit testing [http://www.tsi.com/getmedia/25c8d870-4544-4ae4-8f24-a13a27819577/Introduction-to-RFT-\(ITI-070\)-US?ext=.pdf](http://www.tsi.com/getmedia/25c8d870-4544-4ae4-8f24-a13a27819577/Introduction-to-RFT-(ITI-070)-US?ext=.pdf)
- Respirator Medical evaluation questionnaire
<https://www.osha.gov/Publications/OSHA3789info.pdf>
- Spies A, Wilson K, Ferrie R. Respirator fit of a medium mask on a group of South Africans: a cross-sectional study. *Environmental Health*. 2011;10(1):17
- Jeanneth Manganyi, Kerry S. Wilson, David Rees . Quantitative respirator Fit, face Sizes, and determinants of fit in South African Diagnostic Laboratory Respirator Users, *Annals of Work Exposures and Health*. 2017;61(9):1154-62
- 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; 63(8):930–936

ACKNOWLEDGEMENTS

- NHLS Management
- NIOH Outbreak Response Team
- NICD

Questions

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