

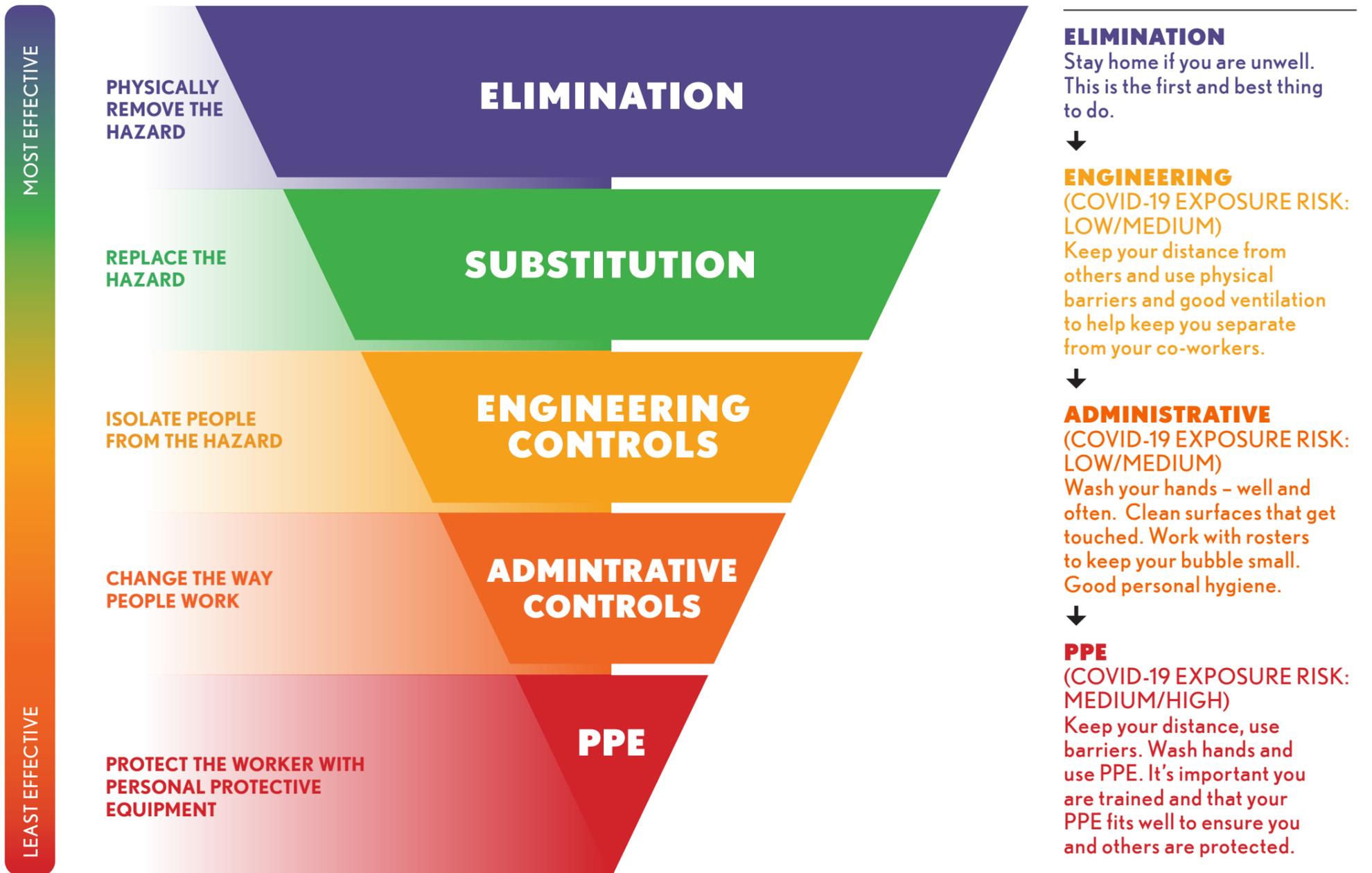


New Zealand
**FOOD SAFETY SCIENCE
& RESEARCH CENTRE**



PERSONAL PROTECTION MEASURES AGAINST COVID-19 FOR WORKERS IN THE FOOD INDUSTRY

COVID-19 is caused by a highly contagious virus that causes respiratory illness. The virus can be severe in some people and is readily passed from one person to another if they are close to each other. When the disease is present in the community there are steps that can be taken to reduce its spread and impact in the workplace.



ASSESSMENT OF COVID-19 EXPOSURE RISK AND SUGGESTED PROTECTION MEASURES¹

The information provided here is to guide employers and staff in deciding on the most appropriate protection measures. The following protection measures are recommended particularly when there are COVID-19 cases in the community and when physical distancing is required by NZ Alert Levels 2, 3 and 4.

| COVID-19 EXPOSURE RISK AT WORK | EXPOSURE RISK DESCRIPTION | PROTECTION MEASURES | | | | | | | |
|--------------------------------|--|---------------------|-----------------|----------------------------|----------------------|------------------------------|-----------------------------|-------------------|-----------------------------|
| | | HAND HYGIENE | SOCIAL DISTANCE | COUGH AND SNEEZE ETIQUETTE | ADEQUATE VENTILATION | FACEMASKS | GLOVES | GOWN OR COVERALLS | EYE PROTECTION |
| LOW/ MEDIUM | Workers who can maintain more than one metre contact distance from other people or can implement protective barriers | | | | | | | | |
| MEDIUM | Workers who may be unable to maintain more than one metre contact distance from other people | | | | | Cloth or Surgical | If direct contact is likely | | Not previously recommended* |
| MEDIUM/ HIGH | Workers who cannot maintain at least one metre contact distance from other people | | | | | Surgical/cloth or Respirator | | | Not previously recommended* |

* Not previously recommended by the Ministry of Health regarding influenza pandemics but a recent review suggested eye protection would give additional protection if used with the other PPE.

PERSONAL PROTECTION MEASURES AGAINST COVID-19 FOR WORKERS IN THE FOOD INDUSTRY

RECOMMENDED USE FOR DISPOSABLE PPE²

| DISPOSABLE PPE | RECOMMENDED USE | KEY QUALITY PARAMETERS | EFFICACY INFORMATION |
|--|--|---|---|
| <p>GLOVES</p>  | <p>Ideally a worker would use two pairs of gloves.</p> <ul style="list-style-type: none"> Inner pair of gloves to cover the skin with a longer cuff to cover the gap between glove and coverall sleeves. Outer pair of gloves on top of inner gloves ('working gloves') and should be suitable for the task the worker has to perform. <p>Remove the outer gloves before touching other PPE items with the inner gloves.</p> <p>The use of two pairs of gloves may not be practical for some work environments so select highly durable and tensile glove as an alternative.</p> <p>BE CAREFUL REMOVING GLOVES AS TRANSFER OF VIRUS FROM THE GLOVES TO THE HANDS OFTEN OCCURS DURING THIS STEP.³</p> | <p>Do not use expired gloves.</p> <p>Choose gloves that have:</p> <ul style="list-style-type: none"> Low defect rates to reduce exposure to chemicals and infectious organisms through the glove material. High tensile strength and durability to give better comfort during use and less breakages. Strong chemical durability. <p>Note CONTACT WITH 70% ETHANOL CAUSES DEGRADATION OF MOST GLOVE TYPES, causing more defects and allowing bacteria or viruses through to the next layer.⁵</p> | <p>POLYURETHANE GLOVES have low defect rates and high tensile strength and durability of the material. These gloves have BETTER PROTECTION AGAINST CHEMICALS AND INFECTIOUS ORGANISMS THAN OTHER GLOVE TYPES. Also seen as a better alternative for contact dermatitis sufferers than latex.⁵</p> <p>Latex gloves are less expensive and are comfortable to wear. These gloves have moderate protection against viruses. However, durability is low after use and after exposure to chemicals (including ethanol). This decreases the protection against virus particles.⁵ Useful as the outer gloves in some situations. Can cause contact dermatitis for some workers.</p> <p>Nitrile gloves have a similar protection against viruses as latex gloves and they are more resistant to many chemicals (except ethanol). Tensile strength is lower than latex and polyurethane making them a little less comfortable and more prone to tearing. Also seen as a better alternative for contact dermatitis sufferers than latex.⁵</p> <p>Polyethylene and polyvinyl chloride gloves are less durable and have higher defect rates.⁵</p> |

PERSONAL PROTECTION MEASURES AGAINST COVID-19 FOR WORKERS IN THE FOOD INDUSTRY

RECOMMENDED USE FOR DISPOSABLE PPE²

| DISPOSABLE PPE | RECOMMENDED USE | KEY QUALITY PARAMETERS | EFFICACY INFORMATION |
|--|--|---|---|
| <p>CLOTH FACEMASK</p>  | <p>Mainly recommended for PREVENTING THE SPREAD of respiratory droplets, possibly containing virus, FROM THE WEARER TO OTHERS.</p> <p>May partially protect the wearer by preventing large virus-containing droplets or splatter entering the wearer's mouth and nose.</p> <p>CLOTH FACEMASKS DO NOT PROTECT THE WEARER FROM BREATHING IN SMALL PARTICLES (SUCH AS VIRUSES), GASES, OR CHEMICALS IN THE AIR.</p> | <p>Do not require a fit (to the face) test.</p> <p>Should be made with AT LEAST THREE LAYERS OF CLOTH:^{13,16}</p> <ul style="list-style-type: none"> • An outer water-resistant layer (eg. polypropylene). • One or more filter layers (polypropylene or cotton). • An inner absorbent layer (eg. cotton). <p>Elastic material, or adding protective coatings to the outer layer are not recommended.¹⁶</p> <p>The facemask should cover the nose and below the chin and fit snugly against the sides of the face.⁷</p> <p>The cloth facemasks need to be easily cleaned without causing distortion.</p> | <p>Evidence for the effectiveness of wearing cloth facemasks to prevent the spread of COVID-19 is not conclusive.^{6,16} However, a recent review shows that cloth facemask use resulted in a reduction of risk of infection.²⁴</p> <p>Many reports agree that CLOTH FACEMASKS ARE THE LEAST EFFECTIVE in reducing transmission but that it is probable they are BETTER THAN WEARING NO MASK.^{10,11,12,13}</p> <p>It should be noted that the risk of self-contamination from facemasks (cloth or surgical) to the worker may outweigh the potential benefits.⁶ Self-contamination can occur when a worker touches the mask surface and then the face, potentially transferring virus to the face.</p> |
| <p>SURGICAL FACEMASK</p>  | <p>Recommended for PREVENTING THE SPREAD of respiratory droplets, possibly containing virus, FROM THE WEARER TO OTHERS.</p> <p>May act as a protective barrier for the wearer by preventing large virus-containing droplets or splatter entering the wearer's mouth and nose.</p> <p>Designed to be single-use and discarded.¹⁶</p> <p>SURGICAL FACEMASKS DO NOT PROTECT THE WEARER FROM BREATHING IN SMALL PARTICLES (SUCH AS VIRUSES), GASES, OR CHEMICALS IN THE AIR.</p> | <p>Do not require a fit (to the face) test.</p> <p>The protective efficacy of disposable facemasks varies depending on type of material used to make the facemask.</p> <p>If marked IIR, surgical masks also protect user against splashes.</p> | <p>Evidence for the effectiveness of wearing surgical facemasks to prevent the spread of COVID-19 is also not conclusive.⁶ However, a recent review shows that surgical facemask use resulted in a reduction of risk of infection.¹³</p> <p>Generally agreed that SURGICAL MASKS PROVIDE BETTER TRANSMISSION PROTECTION THAN CLOTH FACEMASKS^{10,11} ALTHOUGH THIS MIGHT DEPEND ON THE NUMBER OF LAYERS FORMING THE CLOTH MASK.¹³</p> <p>Virus penetration through different models of surgical masks can vary from 20.5% to 84.5% even for masks made by the same supplier.⁴</p> <p>Again, the risk of self-contamination from facemasks to the worker may outweigh the potential benefits.⁶ Self-contamination can occur when a worker touches the mask surface and then the face, potentially transferring virus to the face.</p> |
| <p>RESPIRATORS (FILTERING HALF MASKS)</p>  | <p>PROTECTS THE WEARER against breathing in droplets (containing virus) and other particles.</p> <p>May have strong potential for CONTROLLING THE SPREAD OF RESPIRATORY DROPLETS from the wearer to others.¹⁵</p> <p>BEARDS/MOUSTACHES CREATE SEALING PROBLEMS between the face and mask edges.</p> | <p>REQUIRE A FIT (TO THE FACE) TEST to verify there is no leakage between the face of the user and the respirator.</p> <p>Many are not certified splash proof, especially if they have an uncovered exhalation valve.</p> <p>Different classes give different levels of protection. The most commonly used is the US class N95 RESPIRATOR (equivalent to the EU FFP2 class or the AS/NZS P2) that is supposed to FILTER AT LEAST 95% OF AIRBORNE PARTICLES. There are other respirators available that can filter at least 80% (EU class FFP1) or 99% of airborne particles (EU class FFP3/US class 99). Note that the Chinese KN95 respirator class is not certified in NZ and has some issues with fitting snugly on the face.</p> | <p>Respirators (eg. N95 class) PROVIDE STRONG PROTECTION AGAINST BIOLOGICAL DROPLETS AND AEROSOLS, better than surgical or cloth masks.¹³</p> <p>Note that respirators do not give 100% protection and may also not give the level of protection advertised.⁴</p> |
| <p>GOWNS, COVERALLS AND SEPARATE HOODS</p>  | <p>Protects the skin and clothing of the wearer.</p> <p>A hood offers protection against splashes on the face area.</p> | <p>Composed of splash proof material and seams that are fluid, aerosol, and particle-proof.</p> <p>Coveralls preferably hooded with elastic wrists and ankles. Zippers of coveralls should be covered by a particle-tight and splash-proof flap with an adhesive strip.</p> <p>Integrated surgical Facemask.</p> | <p>Evidence looking at the efficacy of wearing gowns or coveralls against not wearing them has not been identified.⁸</p> |

PERSONAL PROTECTION MEASURES AGAINST COVID-19 FOR WORKERS IN THE FOOD INDUSTRY

RECOMMENDED USE FOR HARD SAFETY PRODUCTS²

| HARD SAFETY EQUIPMENT | RECOMMENDED USE | KEY QUALITY PARAMETERS | EFFICACY INFORMATION |
|---|--|---|---|
| FULL-FACE RESPIRATORS  | <p>HIGH LEVEL OF PROTECTION AGAINST BIOLOGICAL PARTICLES, radiological particles and chemical vapours.</p> <p>Cost of the disposable filter cartridges significantly higher than half mask respirators.</p> | <p>THE USE OF A FULL-FACE RESPIRATOR REQUIRES:</p> <ul style="list-style-type: none"> Regular training. A fit (to the face) test. A suitable decontamination process. | <p>A filtering face piece (FFP3) half mask combined with goggles provides the same level of protection.</p> |
| EYE-WEAR/ GOGGLES  | <p>Protection of the eye membranes against infection.</p> <p>SAFETY GLASSES ARE NOT THE SAME AS GOGGLES AND ARE DESIGNED TO PROVIDE IMPACT PROTECTION ONLY.</p> | <p>GOGGLES SHOULD:</p> <ul style="list-style-type: none"> Fit close to the face so no liquid can enter (eg. goggles with soft-sealing edges). Have good anti-fog coating to help with visibility. Have covered, or no, ventilation openings for best protection against aerosols or airborne pathogens. | <p>Not generally recommended but EYE PROTECTION MAY OFFER AN ADDITIONAL TOOL TO LOWER THE RISK OF INFECTION with COVID-19 and other similar coronaviruses.¹³</p> |
| FACE SHIELDS  | <p>Protects the facial area of the user against airborne fluids.</p> <p>Best used with other PPE because of the open edges around the face.</p> | <p>FACE SHIELDS SHOULD:</p> <ul style="list-style-type: none"> Have a long and wide visor that reaches the point of each ear. Fit snugly to the forehead area. Have anti-glare, anti-static, and anti-fogging treatments. Some industrial models could be used but these tend to be more expensive and heavier to use. | <p>Robust data for face shields used for infection control is lacking.</p> <p>Research has shown FACE SHIELDS TO BE PARTIALLY EFFECTIVE FOR INHALATION EXPOSURE (reduced by 68% to 96% depending on aerosol droplet sizes and distances).</p> <p>Properly fitting full face shields may be more effective than safety glasses for protecting the eyes, but there is little evidence comparing them against safety goggles.</p> |
| BARRIER SCREENS  | <p>Used to reduce the amount of respiratory droplets that might contain COVID-19 virus, having contact with nearby workers.</p> | <p>IDEALLY THE SCREEN WOULD BE:</p> <ul style="list-style-type: none"> Composed of materials that give clear visibility. Easy to clean and disinfect. | <p>There is a LACK OF LITERATURE in this area.</p> <p>There are a few recent publications on the use of barrier boxes or tents in medical settings but they tend to cover enclosures that can contain an infectious aerosol or droplets. An enclosed box was found more effective than a plastic sheet in one report.¹⁴</p> |

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ACKNOWLEDGEMENTS

This guidance document was produced by Kylie Horvath for the New Zealand Food Safety Science and Research Centre with support from advisors from Eagle Protect. Special thanks go to Barry Michaels from B. Michaels Group Inc. Consultants in Product Safety for his time in sourcing literature for different parts of this document. The New Zealand Food Safety Science & Research Centre (NZFSSRC) has used all reasonable endeavours to ensure that the information contained in this poster is accurate. However, NZFSSRC does not give any express or implied warranty as to the completeness of the information contained in the poster.

