

Respiratory Protection in Dental Procedures: Selection, Proper Wear and Common Misuses of Face Masks

Mary Govoni, CDA, RDH, MBA

Educational Grant Support:



Program Objectives

- Identify regulations regarding respiratory protection
 - Identify when respiratory protection is needed
 - Compare types of face masks and their use in dental procedures
 - Describe characteristics of face masks and their levels of protection
 - Identify common misuses of face masks in dentistry
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Personal Protective Equipment Requirements

- OSHA
 - Hazard Communication Standard (CFR 1910.1200)
 - Bloodborne Pathogens Standard (CFR 1910.1030)
 - Personal Protective Equipment (CFR 1910.132, 1910.134)
 - CDC
 - Guidelines for Infection Control in Dental Health-Care Settings (2003)
 - Basic Expectations for Safe Care (2016)
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Face Masks/Respiratory Protection

- Required whenever splashes, spray, spatter or droplets of blood or OPIM may be generated and eye, nose, or mouth contamination can be reasonably anticipated. CFR 1910.1030 (d)(3)(x)
- Employers responsible for supplying for employees



Face Masks/Respiratory Protection

A surgical mask that covers both the nose and mouth and protective eyewear with solid side shields or a face shield should be worn by DHCP during procedures and patient-care activities likely to generate splashes or sprays of blood or body fluids. Protective eyewear for patients shields their eyes from spatter or debris generated during dental procedures. A surgical mask protects against microorganisms generated by the wearer, with >95% bacterial filtration efficiency, and also protects DHCP from large-particle droplet spatter that might contain bloodborne pathogens or other infectious microorganisms (173). The mask's outer surface can become contaminated with infectious droplets from spray of oral fluids or from touching the mask with contaminated fingers. Also, when a mask becomes wet from exhaled moist air, the resistance to airflow through the mask increases, causing more airflow to pass around edges of the mask. If the mask becomes wet, it should be changed between patients or even during patient treatment, when possible (2,174).



Face Masks/Respiratory Protection

- Using of handpieces, air/water syringe, mechanical scaler
- Cleaning equipment and instruments
- Using surface disinfectants and cleaners
- Trimming appliances, prostheses and models in the laboratory



Face Masks/Respiratory Protection

- Types of respiratory protection used in dentistry
 - Disposable face masks
 - Earloop
 - Tie-on
 - Cone
 - N-95 respirators
 - Combination mask and eye shield



Face Masks/Respiratory Protection

Factors to consider when selecting face masks

- Fluid resistance
- Bacterial Filtration Efficiency (BFE)
- Particulate Filtration Efficiency (PFE)



American Society for
Testing and Materials F2100



<https://www.fda.gov/MedicalDevices/ucm055977.htm>

Face Masks/Respiratory Protection

Factors to consider when selecting face masks

ASTM Level 1 – Low Barrier

ASTM Level 2 – Moderate Barrier

ASTM Level 3 – High Barrier

LEVEL:

1

ASTM Low Barrier:

For procedures where fluid, spatter, and/or aerosols are produced in low concentrations.

Procedures:

- Patient Exams
- Operatory Cleaning/Maintenance
- Impressions
- Lab Trimming, Finishing & Polishing
- Orthodontics

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ASTM Moderate Barrier:

For procedures where generation of fluid, spatter and/or aerosols is moderate.

Procedures:

- Restorative/Composites
- Endodontics
- Prophylaxis
- Sealants
- Scaling & Root Planning
- Limited Oral Surgery

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ASTM High Barrier:

For procedures where heavy to moderate levels of fluid, spatter and/or aerosols are produced.

Procedures:

- Crown Preparation
- Implant Placement
- Use of Ultrasonic Scaler
- Use of Piezo Scaler with Water or Medicaments
- Periodontal Surgery
- Complex Oral Surgery



Face Masks/Respiratory Protection

Factors to consider when selecting face masks

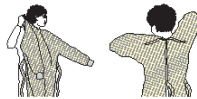
- Ease of donning and removal
 - Fit
 - When in place, should not contact wearer's nostrils or lips
 - Fogging
 - Skin sensitivity
 - Dyes
 - Fibers
-

SEQUENCE FOR DONNING PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required; e.g., Standard and Contact, Droplet or Airborne Infection Isolation.

1. GOWN

- Fully cover torso from neck to knees, arms to end of wrist, and wrap around the back
- Fasten in back of neck and waist



2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator



3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit



4. GLOVES

- Extend to cover wrist of isolation gown



SECUENCIA PARA PONERSE EL EQUIPO DE PROTECCIÓN PERSONAL (PPE)

El tipo de PPE que se debe utilizar depende del nivel de precaución que sea necesario; por ejemplo, equipo Estándar y de Contacto o de Aislamiento de Infecciones transportadas por gotas o por aire.

1. BATA

- Cubra con la bata todo el torso desde el cuello hasta las rodillas, los brazos hasta la muñeca y dóblela alrededor de la espalda
- Átela por detrás a la altura del cuello y la cintura

2. MÁSCARA O RESPIRADOR

- Asegúrese los cordones o la banda elástica en la mitad de la cabeza y en el cuello
- Ajuste la banda flexible en el puente de la nariz
- Acomódese en la cara y por debajo del mentón
- Verifique el ajuste del respirador

3. GAFAS PROTECTORAS O CARETAS

- Colóquelas sobre la cara y los ojos y ajústela

4. GUANTES

- Extienda los guantes para que cubran la parte del puño en la bata de aislamiento

USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene

UTILICE PRÁCTICAS DE TRABAJO SEGURAS PARA PROTEGERSE USTED MISMO Y LIMITAR LA PROPAGACIÓN DE LA CONTAMINACIÓN

- Mantenga las manos alejadas de la cara
- Limite el contacto con superficies
- Cambie los guantes si se rompen o están demasiado contaminados
- Realice la higiene de las manos

SEQUENCE FOR REMOVING PERSONAL PROTECTIVE EQUIPMENT (PPE)

Except for respirator, remove PPE at doorway or in anteroom. Remove respirator after leaving patient room and closing door.

1. GLOVES

- Outside of gloves is contaminated!
- Grasp outside of glove with opposite gloved hand; peel off
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist
- Peel glove off over first glove
- Discard gloves in waste container



2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield is contaminated!
- To remove, handle by head band or ear pieces
- Place in designated receptacle for reprocessing or in waste container



3. GOWN

- Gown front and sleeves are contaminated!
- Unfasten ties
- Pull away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard



4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- Grasp bottom, then top ties or elastics and remove
- Discard in waste container



SECUENCIA PARA QUITARSE EL EQUIPO DE PROTECCIÓN PERSONAL (PPE)

Con la excepción del respirador, quítese el PPE en la entrada de la puerta o en la antesala. Quítese el respirador después de salir de la habitación del paciente y de cerrar la puerta.

1. GUANTES

- ¡El exterior de los guantes está contaminado!
- Agarre la parte exterior del guante con la mano opuesta en la que todavía tiene puesto el guante y quíteselo
- Sostenga el guante que se quitó con la mano enguantada
- Deslice los dedos de la mano sin guante por debajo del otro guante que no se ha quitado todavía a la altura de la muñeca
- Quítese el guante de manera que acabe cubriendo el primer guante
- Arroje los guantes en el recipiente de desechos

2. GAFAS PROTECTORAS O CARETA

- ¡El exterior de las gafas protectoras o de la careta está contaminado!
- Para quitarlas, tómese por la parte de la banda de la cabeza o de las piezas de las orejas
- Colóquelas en el recipiente designado para reprocesar materiales o de materiales de deshecho

3. BATA

- ¡La parte delantera de la bata y las mangas están contaminadas!
- Desate los cordones
- Tocando solamente el interior de la bata, pásala por encima del cuello y de los hombros
- Vuelva la bata al revés
- Dóblela o enróllela y deséchela

4. MÁSCARA O RESPIRADOR

- La parte delantera de la máscara o respirador está contaminada — ¡NO LA TOQUE!
- Primero agarre la parte de abajo, luego los cordones o banda elástica de arriba y por último quítese la máscara o respirador
- Arrójela en el recipiente de desechos

PERFORM HAND HYGIENE IMMEDIATELY AFTER REMOVING ALL PPE

EJECÚTE LA HIGIENE DE LAS MANOS INMEDIATAMENTE DESPUÉS DE QUITARSE CUALQUIER EQUIPO DE PROTECCIÓN PERSONAL



<https://www.cdc.gov/hai/pdfs/ppe/ppeposter1322.pdf>

Face Masks/Respiratory Protection

Donning a face mask - CDC:

- *Identify correct orientation for the mask*
 - *front vs. back (side facing up in box or color on outside)*
 - *up vs. down (direction of pleats)*
- *Place mask over nose, mouth and chin*
- *Fit the flexible nosepiece over bridge of nose*
- *Secure on head with elastic/loops/ties*
- *Adjust mask to fit*



Face Masks/Respiratory Protection

Donning an N-95 Respirator – CDC:

- Select appropriate size through fit testing
- Place over nose, mouth and chin
- Fit flexible nosepiece over bridge of nose
- Secure on head with elastic bands
- Adjust to fit
 - Inhale and the respirator should collapse
 - Exhale and check for leakage of air around the face

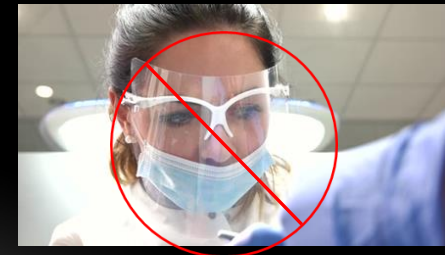


<https://www.cdc.gov/niosh/docs/2010-133/pdfs/2010-133.pdf>

Face Masks/Respiratory Protection

Most common misuses of face masks:

- *Continuing to wear mask when it becomes damp/wet*
- *Wearing mask for more than one patient*
- *Wearing mask upside down or inside out*
- *Pushing mask underneath chin*
- *Touching contaminated mask with bare hands*



MARY GOVONI, CDA, RDH, MBA



mary@marygovoni.com



www.marygovoni.com



@MaryGovoni



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