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Please visit [Open Source COVID19 Medical Supply Guide] for updated links to document

~~OSCMS - Face Shields~~

~~The Problem:~~

~~Patients with COVID-19 experience significant respiratory issues, resulting in coughing. Virus particles are easily spread in the fluids expelled from the patient during episodes of coughing. The face shield is an additional barrier between the healthcare worker and the patient, reduces the risk of viral transmission via airborne droplets, and reduces virus load on face masks worn underneath the face shield.~~

~~Current Global Resources:~~ ~~Hospitals around the world continue to report shortages of face shields.~~ **~~[3/28/2020]~~**

~~OSCMS Item Needs Assessment Chart~~

Worst Case Expectation:

Hospitals and clinicians will exhaust their supply of face shields and have no choice but to treat infectious patients without a face shield to reduce exposure to airborne droplets and contagious body fluids.

Engineering Requirements:

- Shield made of clear plastic that is firm (i.e. it will not "crinkle" or bend when someone bends forward or backward)
- Should provide complete coverage of the entire face, including the length of the face to the chin, and the sides of the face (ideally 9" x 13" - though many designs will not meet this standard).
- Ideal to have material across top of forehead to prevent ingress of liquids/droplets down the face and provide comfort
- Must be able to be comfortably worn for long shifts (i.e. 12+ hours)
- Adjustable band that is firmly attached around the head and clings closely to the forehead
- Non-latex elastic (if using elastic) or band

Assembly/Fabrication Requirements:

- Clear polyester film 0.0007" thick (other thicknesses and materials such as PET, PETG, polycarbonate, with anti-fog coating ideal)
- 1" wide elastic fabric or other band that can be adjusted; must be comfortable, adjustable, non-latex
- Adhesive-backed closed-cell polyurethane foam (depending on the design, this may not always be necessary - please see the design docs)
- Laser cutter or steel rule die
- Stapler and shear
- Heat sealer
- Note: Low-end manufacture possible with scissors, Xacto, stapler

Projects/Resources:

Facebook Post to OSCMS Group- JustCreate Face Shield
OSHA Eye and Face Protection eTool
Design That Matters face shield resources

Reviewed Designs:

*This section is for face shield designs for **medical settings as well as other settings** (links to instructions or downloadable packages) that have been reviewed and approved* by medical professionals. When adding a design to this list, please include the (approximate) date of approval, the group or organization that reviewed it, and any modifications they recommend.*

Designs must be manufactured as described. Review and approval should not be interpreted as official regulatory certification or rigorous peer review. These designs are being used by clinicians and others and they have been critiqued by medical professionals.

Medical Settings - Full Protection

Project Name: COVID19 Medical Face Shield (University of Wisconsin)
Design Link: https://making.engr.wisc.edu/shield/
Notes:

- Reviewed 3/19/20
- Reviewed by: OSCMS Medical Review Team
- *Recommended modifications: Non-latex elastic band; non-porous foam*
- *Notes: Single use only, though disinfection of the plastic is possible with "Oxyvarin" Disinfectant (for McMaster-Carr sourced PET, other brands may require different disinfectant)*

Project Name: DtM Face Shield Headband
Design Link: https://3dprint.nih.gov/discover/3dpx-013359.
Notes:

- Reviewed 4/03/20
- Reviewed by: OSCMS Medical Review Team; NIH
- *Recommended modifications: None*

Project Name: IC3D Budmen Face Shield
Design Link: https://3dprint.nih.gov/discover/3dpx-013309.
Notes:

- Reviewed 4/03/20
- Reviewed by: OSCMS Medical Review Team; NIH
- *Recommended modifications: None*

Project Name: Stratsys
Design Link: https://3dprint.nih.gov/discover/3dpx-013421
Notes:

- Reviewed 4/03/20
- Reviewed by: OSCMS Medical Review Team; NIH
- *Recommended modifications: None*

Project Name: Prusa Face Shield
Design Link: USA - because of the punch holes; EU - because of the punch holes
Notes:

- Reviewed: 4/03/20
- Reviewed by: OSCMS Medical Review Team; Czech Ministry of Health
- *Recommended modifications: Prusa added a cover to their design; this addition further protects the wearer in instances of aerosolized droplets/virus.* ***Some hospitals or clinicians will want to have the cover due to higher risk conditions****; others may not need it. Prusa added specifications regarding sterilization: https://help.prusa3d.com/en/article/prusa-face-shield-disinfection_125457*

Project Name: Proto Shield
Design Link: https://www.protohaven.org/proto-shield/
Notes:

- Reviewed: 4/03/20
- Reviewed by: OSCMS Medical Review Team
- Similar to Prusa; visor is compatible with Prusa 3D printed parts; faster to production.
- *Recommended modifications: Prusa printed cover*

Project Name: Origami Face Shield
Design Link: https://www.helpfulengineering.org/projects/origami-face-shield/
Notes:

- Reviewed 4/09/20
- Reviewed by: OSCMS Medical Review Team
- *Recommended modifications: None. Check with hospital or healthcare facility before distribution. Individual medical facility protocol will determine if this can be used during intubation procedure. Useful for nursing home staff, first responders, and non-healthcare workers such as delivery couriers*

Other Care/Service Settings - Some Protection

Project Name: Solin Design
Design Link: Flat Pack Design
Notes:

- Reviewed: 4/03/20
- Reviewed by: OSCMS Medical Review Team

Project Name: Open Face PPE
Design Link: https://open-face-ppe.now.sh/
Notes:

- Reviewed: 4/03/20
- Reviewed by: OSCMS Medical Review Team

Not Recommended:

Project Name: Baseball Cap Face Shield
Design Link: https://www.facebook.com/photo.php?fbid=2590588794549230
Notes:

- Reviewed by: OSCMS Medical Review Team
- Reason: Hat is difficult to sterilize.