

## Covid Special Article

### Easy Way to Prepare Reusable Face Shield for Healthcare Workers

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#### Abstract

Face shield is one of the parts of personal protection equipment. It is used to protect face which includes eyes, nose, mouth etc. It is mainly used by healthcare workers to protect them from patients body fluids like droplets, secretions etc. In the present scenario of limited resources, we have prepared a reusable face shield from lamination Pouch.

**Keywords:** Face shield, Covid 19, personal protection equipment (PPE)

#### Introduction

In the recent outbreak of Covid 19, resulted in attention towards protection of eyes, nose and mouth from secretion of infected person. It is well known that health care workers are frequently exposed to body fluids of patients and get infected. According to recent update from world health organization, total confirmed cases of Covid 19 till 6<sup>th</sup> of April 2020 are 1210956 and total deaths are 67594 globally.<sup>1</sup> Many countries are in lockdown to prevent transmission of virus. But healthcare workers are continuing to provide services putting their lives as well as their families at risk to get infected from Covid 19. In China about 3300 health care workers were infected till early March 2020 and 22 have died at the end of February 2020. In Italy, 20% of health care workers got infected. As this pandemic is accelerating, requirements of PPEs are increasing. Apart from various needs, PPE shortages have been described in most affected facilities<sup>2</sup>. Face shield is one of the important part of PPE. We described a simple method to prepare a reusable face shield with lamination Pouch.

taken. Lamination Pouch is laminated with hot mode on lamination Machine. Initially the pouch is not transparent but after lamination it becomes transparent. With the help of punch machine, holes are created according to personal view. Thread or Elastic can be used to tie this shield. Once use is over, remove thread or Elastic (removable) and pass it again through lamination machine in hot mode. Once again shield is ready for reuse. (Figure 1,2,3,4,5 & 6)



Figure 1: Lamination pouch



Figure 2: Lamination machine in hot mode

#### Methodology of Preparation of Face Shield

A A4 size lamination Pouch, lamination machine, punch machine and Thread or Elastic is

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Figure 3: lamination under process at high temperature



Figure 4: Transparent film post Lamination



Figure 5: Lamination of used film

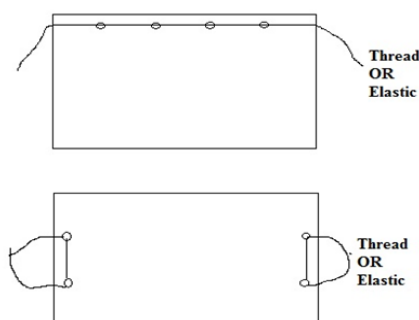


Figure 6 : Methods to tie a thread or Elastic

## Discussion

Shortages of PPEs and cost of face shield are very well known. PPEs which are available are disposable as maintaining it sterile is always debatable. According to various resources from net, temperature of various lamination machine ranges from 150-400 degree Fahrenheit depending on width of the lamination pouch. According to WHO, heat at 56 degree Celsius kills the SARS coronavirus at around 10000 units per 15min (quick reduction) in cell culture supernatant.<sup>3</sup> Various studies have showed that higher temperature and high relative humidity inactivates the SARS Coronavirus.<sup>4</sup>

Currently there is no standard but only recommendation regarding protection of face from biological hazards. Lamination pouch can be reused by passing it again through lamination machine having very high temperature during lamination process. If Lamination Machine is not there then it is our suggestion to do ironing by putting a cloth over lamination pouch. The heat during the process of ironing is 180-220 degree Celsius depending upon the fabric of cloth.<sup>5</sup> Apart from face shield, we must not forget rational use of PPE for coronavirus disease (Covid-19).<sup>6</sup>

## Conclusion

Lamination pouch can be used as face shield in present times of limited resources. It is easy to prepare as well easy to reuse.

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