



Short Communication

The super-protect box- An armour during dealing with Covid -19 patients

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ABSTRACT

As of 1st may more than 4.1 million cases have been reported in the pandemic starting from Wuhan in China and spreading across 202 countries worldwide. The mortality of the disease has remained around 1 to 7% as per various studies around the world. Covid 19 primarily involves the respiratory tract and may lead to severe acute respiratory illness in patients who are elderly with co morbidities. Many patients require airway management which includes intubation, suctioning, nebulisation, at times bronchoscopy and tracheostomy. This may expose the healthcare workers to aerosols generated during the procedure. Various techniques involved in mitigating this have been published in recent literature. The authors of this article institute have indigenously constructed a device to ensure safety during aerosol generating procedures called the super protect box the details of which are mentioned in the main article.

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1. Introduction

In the month of December there were cluster of patients found in Wuhan, China who had similar respiratory illness like SARS, later it was notified as an epidemic due to novel Corona virus on 31st December by the world health organisation. It then continued to become a pandemic leading to mortality in the patients which was primarily due to sever acute respiratory illness who needed ventilatory support. There is increased risk to healthcare workers during the pandemic.¹ Aerosolisation leads to exposure of massive loads of virus and contamination of self and equipment the doffing of which may at time lead to infection of healthcare workers. Procedure like intubation, extubation, bronchoscopy, tracheostomy are noted to generate aerosols. On 3rd April an article published in the NEJM described the effect of aerosolisation during a cough inducing procedure.² The use of transparent aerosol box served as a barrier enclosure which will be an added protection during procedures in addition to donning standard personal protective equipment. However India is

presently under a lockdown and there is no availability of any resources and raw material to build the box. Hence the author's came out with a unique way of converting an incubator into what they have named their "super protect box" for aerosol generating procedures.

An incubator (made of hard and heavy acrylic) was found in a condemned section of the hospital (Figure 1). The weight of the incubator was 22 kilos. Two openings already present on one side was left open for handling the airway as show in Figures 2 and 3. The sides and the front section was cut open to accommodate the patients body and help in reduction of the weight as shown in Figures 2 and 3.

The super protect box is presently in use by the critical care physicians during all aerosol generating procedures like intubation, extubation, nebulisation, suctioning etc and till date have developed great confidence and literally "feel safe" during any procedure involving generation of aerosols like intubation.

The merits of the "super protect box" is

1. Indigenously developed from waste and condemned material
2. Light weight (3 kilos)

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Fig. 1: Incubator

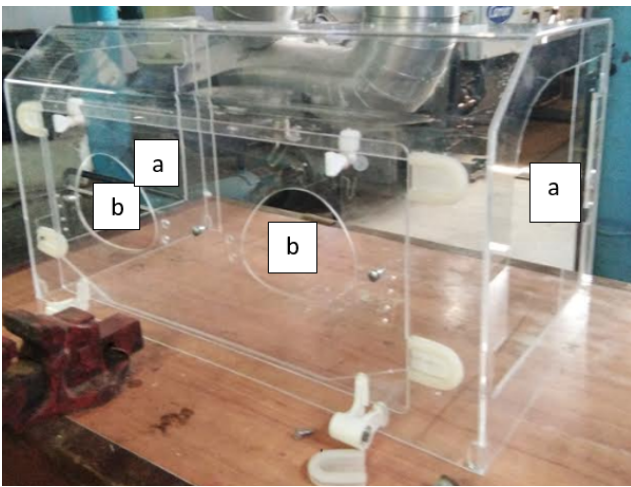


Fig. 2: Refashioned “super protect box” (a:



Fig. 3: Intubation

3. Very stable on the bed
4. Enough space to manoeuvre as compared to the aerosol box mentioned in the NEJM article by Canelli et al.²
5. Markedly reduces the chances of contamination
6. Gives a great sense of security for health care workers.

Such indigenously developed equipment may be warranted in hospitals dealing with Covid- 19 patients especially when countries are literally under a lock down in-order to ensure safety of their healthcare workers.

2. Conflicts of interest

Nil

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