

Reusable, Low-Cost Alternative for Standard Personal Protective Equipment for Use in Non-COVID-19 Healthcare Service Areas

Personal protective equipment (PPE) consist of gown, goggles, face-shield, mask, gloves, head cover and shoe cover [1]. The health ministry has laid down guidelines on the type of PPEs to be used in different outpatient (OPD) and inpatient setting [2]. In non-COVID treatment areas of the hospital, the recommendation is to assess patient profile and to use PPE judiciously as per hospital infection control practices [1]. The rapid rise in cases has resulted in huge demand for PPEs due to high demand-to-supply ratio [3]. The standard, hospital grade, disposable PPE kits cost anywhere from 250 to 2000 INR per unit and can incur significant expenditure on hospitals, thereby indirectly raising the overall healthcare costs. All these factors underscore the need for a low-cost, reusable alternative for PPE, which can be used during this pandemic.

We propose a cheaper and reusable alternative to PPE gowns that can be used in non-COVID OPD and inpatient areas of hospital in resource-limited setups. This includes using a synthetic, high quality, breathable, micro-polyester, waterproof raincoat with hood that wraps the entire body from head to feet. The hood covers the head and neck and hair is tucked inside the head cover. The raincoat should be taped at the seams to prevent fluid/droplets/aerosol entry. This can be combined with gloves, goggles, face shield and masks to provide overall protection against contact with infectious material/agents. It can be reused multiple times after surface cleaning with 1% sodium hypochlorite solution. Ease of performing clinical examination and auscultation using stethoscope will be better than standard PPE [1,4]. This cheaper alternative can help to overcome the shortage of PPE kits, especially in non COVID-19 areas of the hospital, where healthcare workers have contact with patients who might be asymptomatic severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) carriers thereby increasing the risk of contracting COVID-19 infection.

Authors admit that there are obvious limitations with the overall efficacy of this model when compared to a standard PPE kit in terms of protection against SARS-CoV-2 transmission and this model should not be used in COVID-19 patient care areas. Other limitations include inability to achieve airtight seal like in standard PPE, the need for surface cleaning which carries infection risk, and difficulty in standardizing the quality and specifications of raincoat. Nevertheless, considering the risk versus benefit, increased demand and cost factor, this proposed alternative may be worth exploring in resource-limited settings, in non-COVID areas of the hospital, where the risk of acquiring infection is still high from asymptomatic COVID-19 patients. However, widespread use of this model can be recommended only after testing its efficacy and validity from studies in different settings.

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