

## How to make an alternative plastic gown during the personal protective equipment shortage due to the COVID-19 pandemic

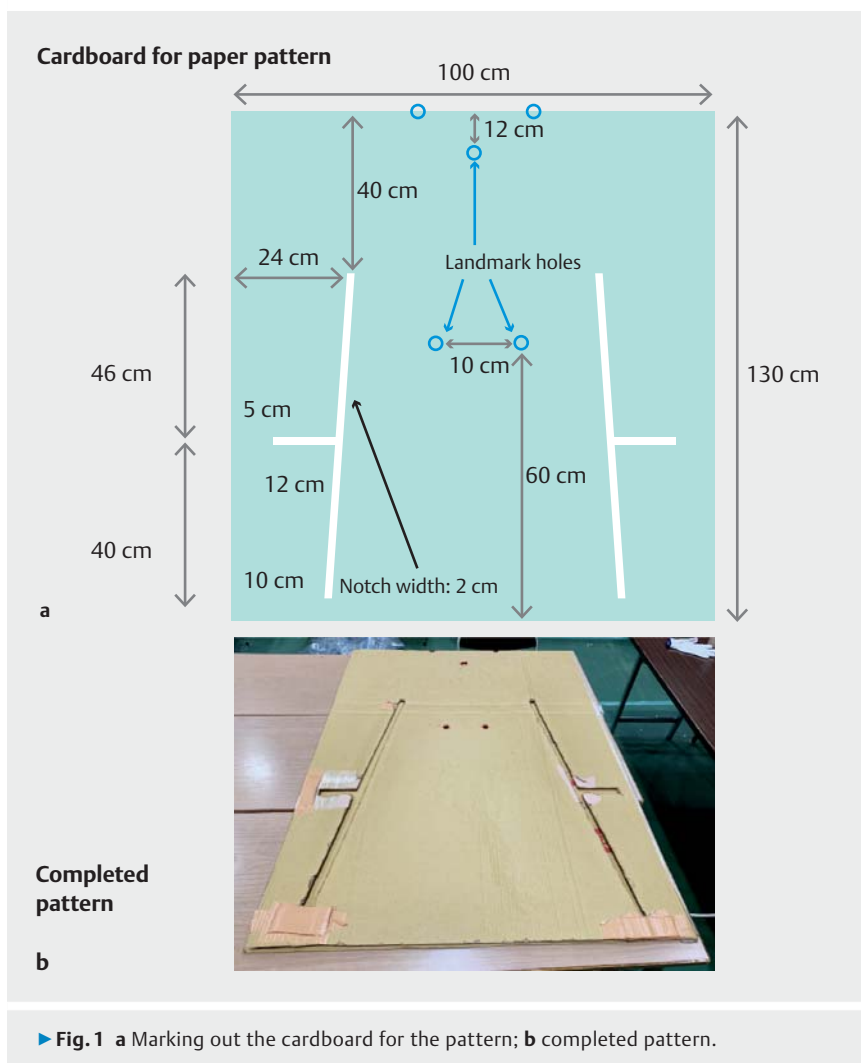
Prevention of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) transmission has led to a shortage of personal protective equipment (PPE) since the end of 2019, when SARS-CoV-2 was identified in Wuhan, China. Quickly manufactured alternative PPE is in high demand worldwide. We show how to make an alternative long-sleeve plastic gown for use as PPE, the Toyonaka Poly Gown, using a plastic trash bag. We thank all staff and doctors at Toyonaka Municipal Hospital.

To make the garment, you need: (i) cardboard to make a pattern (length 130 cm × width 100 cm), (ii) a heat gun, (iii) scissors, and (iv) a 120-L plastic trash bag (120 cm × 100 cm).

First, prepare the cardboard to be used for the pattern by cutting slits (“notches,” width 2 cm) and holes as shown in ► **Fig. 1**. Next, place the plastic trash bag beneath the cardboard pattern. Use a magic marker to mark dots through the holes for landmarks. Then, using a heat gun, heat-weld along the slits in the cardboard pattern. After that, use scissors to cut the middle of the back of the plastic bag up to the landmark dot at 10 cm. On either side of that cut line, cut strips (width 5 cm) for the right and left waist “strings,” and then cut the neck hole. Finally, cut along the center of the welded “seams” of the plastic bag to make sleeves (► **Fig. 2**; ► **Video 1**).

To wear the gown, first put your arms through the sleeves. You can spread and adjust the size of the cuff when you put your arm through the cuff. Then, put your head through the neck of the gown. Finally, tie the gown strings in the back (► **Video 1**).

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### Competing interests

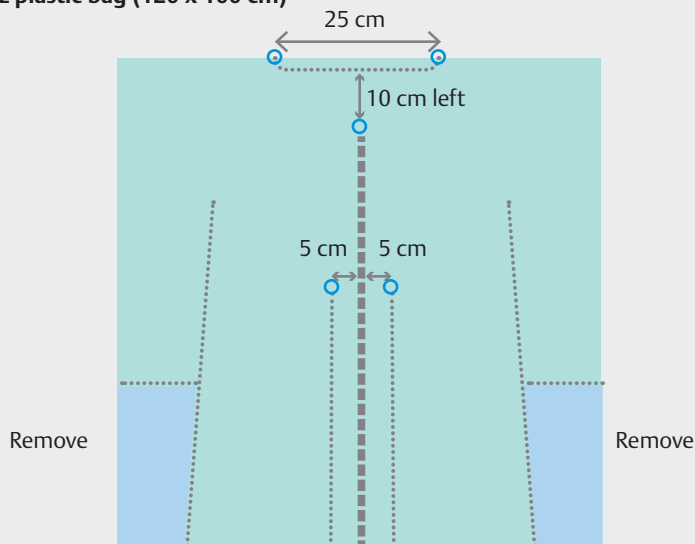
The authors declare that they have no conflict of interest.

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### 120 L plastic bag (120 x 100 cm)



**a** Backside of the plastic bag with cutting line



**Completed gown**

**b**

► **Fig. 2** **a** Cutting lines for a 120-L plastic bag (120 cm × 100 cm), back side up; **b** completed gown.

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### Bibliography

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► **Video 1** How to make an alternative long-sleeve plastic gown during the personal protective equipment shortage due to the COVID-19 pandemic: the Toyonaka Poly Gown.