

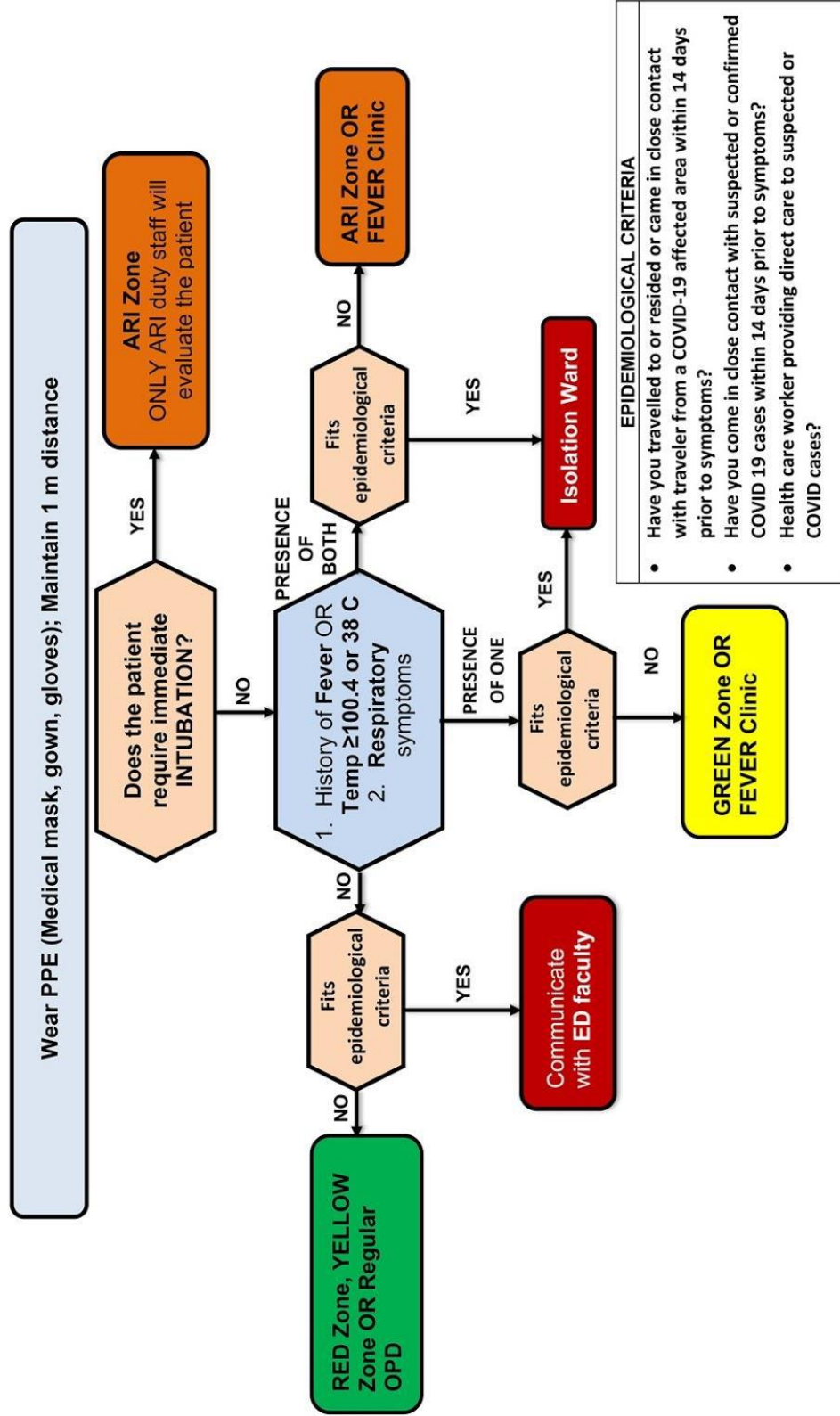
Supplement files:

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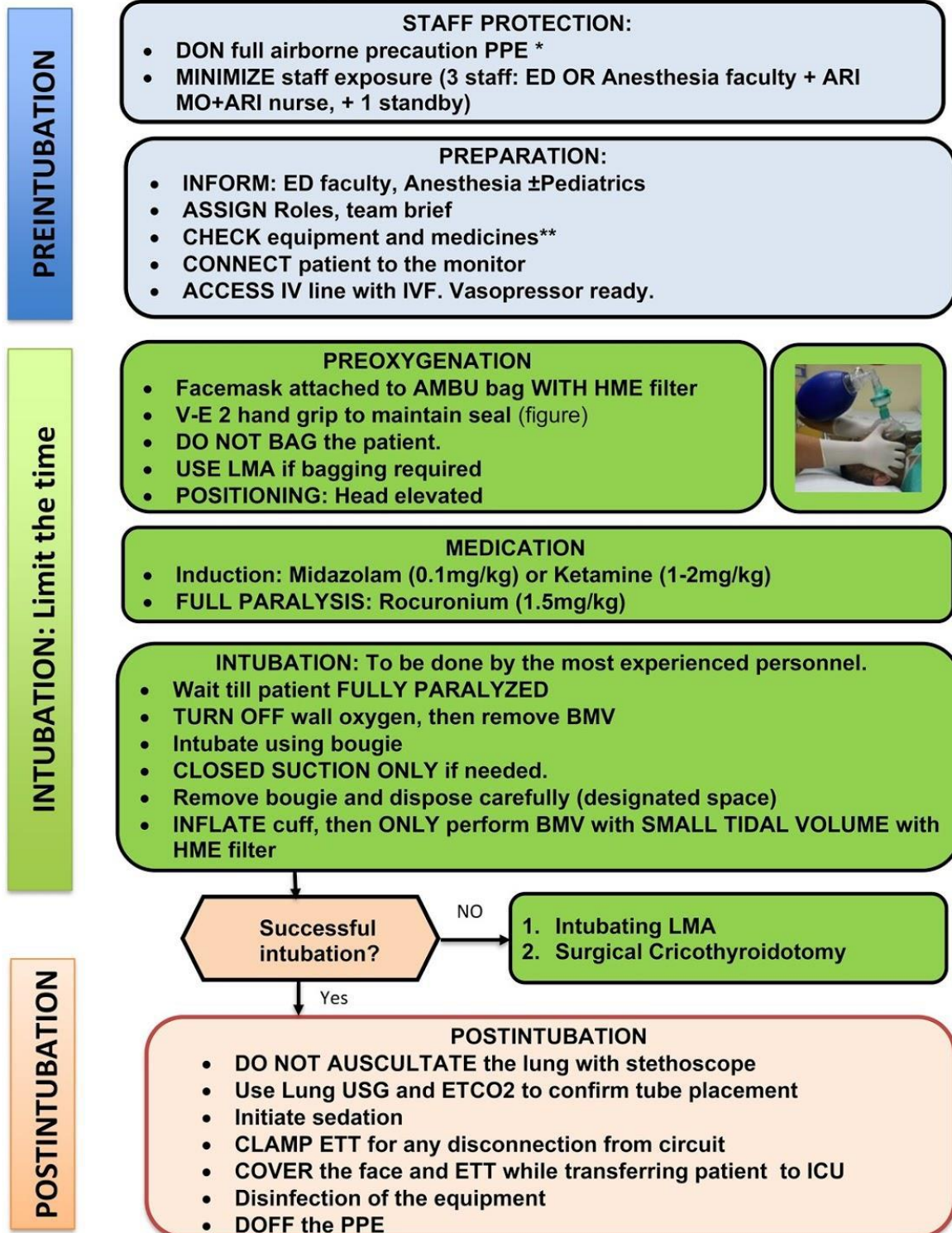
Supplement 1: COVID-19 Triage Algorithm

DH ED INTERIM TRIAGE ALGORITHM FOR COVID 19: Version 4



Supplement 2A. COVID Protected Intubation protocol

Dhulikhel Hospital COVID ED Rapid Sequence Protected Intubation ALGORITHM



Supplement 2B. COVID-19 Protected Intubation checklist

Dhulikhel Hospital COVID ED Rapid Sequence Protected Intubation ALGORITHM COVID INTUBATION FORM

COVID - 19 AIRWAY TEAM		NAMES	
1 - ED FACUTLY/ ANESTHESIA/ PEDIATRIC - ON CALL			
2 - ARI MO (Airway Assistant)			
3 - ARI NURSE/ PARAMEDIC			
ARI RESUSCITATION ZONE SET - UP			
Monitor	<input type="checkbox"/>		
Airway trolley	<input type="checkbox"/>		
Suction port	<input type="checkbox"/>		
Oxygen port	<input type="checkbox"/>		
Defibrillator	<input type="checkbox"/>		
IV access and Medication tray	<input type="checkbox"/>		
VTM tray	<input type="checkbox"/>		
EQUIPMENT CHECK	MONITORS	DRUGS	
<input type="checkbox"/> Suction checked	<input type="checkbox"/> SpO2	<input type="checkbox"/> IV Access	
<input type="checkbox"/> HME filter attached to AMBU	<input type="checkbox"/> ECG	<input type="checkbox"/> Ketamine _____ mg	
<input type="checkbox"/> Laryngoscope - 2 blades (check battery)	<input type="checkbox"/> NIBPM	<input type="checkbox"/> Midazolam _____mg	
<input type="checkbox"/> ETT - 2 sizes, cuffed (checked and lubricated)	<input type="checkbox"/> USG	<input type="checkbox"/> Rocuronium _____mg	
<input type="checkbox"/> Bougie/ Stylet/Clamp	<input type="checkbox"/>	<input type="checkbox"/> Emergency drugs _____	
<input type="checkbox"/> Tube fixing tape		<input type="checkbox"/> Vasopressor _____	
<input type="checkbox"/> Oro-pharyngeal Airway		<input type="checkbox"/> Post- induction sedation	
<input type="checkbox"/> Syringe - 10 ml			
<input type="checkbox"/> LMA			
Attempts if intubation:			
<input type="checkbox"/> One	<input type="checkbox"/> Two	<input type="checkbox"/> Three	<input type="checkbox"/> > Three
Any Critical Events:			
<input type="checkbox"/> Arrhythmia	<input type="checkbox"/> Hypotension	Others: _____	

Supplement 2C. Donning checklist for ED

Dhulikhel Hospital COVID ED protocols

Donning Checklist – COVID - 19

To be supervised by Trained Observer:

S.N.	Action	Done
1	Remove personal clothing and items, wear scrubs, tidy hair	
2	Wash hands – Follow WHO guidelines	
3.	Put on disposable surgical cap	
4.	Wear N95 (1 st lower and then upper band)	
5	Wear a surgical mask over the N95	
6	Wear goggles	
7	Remove slippers and wear foot covers	
8	Wear inner gloves	
9	Inspect PPE before donning	
10	Wear PPE	
11	Wear visor (if goggles not used)	
12	Wear boot	
13	Wear outer gloves	
14	Verify and correct if any skin exposure	
15	Label	

Donning by:

Date:

Checked by:

Supplement 2D. Doffing checklist for ED

Dhulikhel Hospital COVID ED protocols

Doffing Checklist – COVID – 19

To be supervised by Trained Observer:

S.N.	Action	Done
1	Disinfect outer gloves – Follow WHO guidelines*	
2	Replace the outer gloves with new ones	
3	Remove visor (if used)	
4	Remove PPE along with boot and outer gloves	
5	Put the boot in designated bucket	
6	Disinfect inner gloves*	
7	Remove goggles (if used)	
8	Disinfect inner gloves*	
9	Remove surgical mask and N95 mask bending forward DO NOT touch the anterior surface of the MASKS	
10	Disinfect inner gloves*	
11	Remove surgical Cap	
12	Disinfect inner gloves*	
13	Remove foot cover and wear slipper	
14	Disinfect inner gloves and remove them*	
15	Perform hand hygiene	

Doffing by:

Date:

Checked by:

Supplement 3A. Triage ISS case scenarios

ED Triage questionnaire for COVID 19

Dear Colleagues

As a part of the "Development and Implementation of ED protocols at the Department of General Practice and Emergency Medicine, Kathmandu University School of Medical Sciences, we have developed the KUSMS-ED protocols specific to the ongoing COVID 19 pandemic. Your responses will be of great value to this process and will help us assess your understanding. The responses will be kept confidential. Happy learning!

* Required

1. Name *

2. Code *

3. Department *

4. Qualification *

Mark only one oval.

MBBS

Staff Nurse

Health Assistant

CMA

Other: _____

5. Email *

Case vignettes

Based on the vignettes provided below, triage and assign the following patients to the respective areas. The following case vignettes have a SINGLE response as the CORRECT answer.

6. A 35-year-old patient presents to the triage area at 1 pm with fever and increased frequency of micturition for the past 3 days. The patient tells you that his brother is admitted to the COVID isolation unit in Patan Hospital. * 1 point

Mark only one oval.

- Red zone
- Yellow zone
- Green zone
- Discuss with ED faculty
- ARI zone
- Isolation ward
- Fever clinic
- Regular OPD
- Do not know

7. A 25-year-old female presents to the ED triage area at 11 am with fever and shortness of breath since yesterday. There is no positive history of travel or contact for COVID 19. His saturation is 98% and talks in a full sentence. * 1 point

Mark only one oval.

- Red zone
- Yellow zone
- Green zone
- Discuss with ED faculty
- ARI zone
- Isolation ward
- Fever clinic
- Regular OPD
- Do not know

8. A 28-year-old patient with fever and dry cough at 8 pm to the ED triage. The patient returned from Biratnagar 2 days ago. * 1 point

Mark only one oval.

- Red zone
- Yellow zone
- Green zone
- Discuss with ED faculty
- ARI zone
- Isolation ward
- Fever clinic
- Regular OPD
- Do not know

9. A 52 year of female presents with history of COPD presents to ED at 9 am with 1 point increased shortness of breath since today morning. She ran out of her regular medications 2 days back. Her saturation is 88%. *

Mark only one oval.

- Red zone
- Yellow zone
- Green zone
- Discuss with ED faculty
- ARI zone
- Isolation ward
- Fever clinic
- Regular OPD
- Do not know

10. An 88-year-old male with a history of Diabetes presents with severe 1 point respiratory distress. She is a resident of Dhulikhel. You anticipate that this patient requires immediate intubation. *

Mark only one oval.

- Red zone
- Yellow zone
- Green zone
- Discuss with ED faculty
- ARI zone
- Isolation ward
- Fever clinic
- Regular OPD
- Do not know

11. A 77-year-old male presents to ED in your morning shift with a history of fever for the past 5 days. His vitals are normal. He does not fit the epidemiological criteria for COVID 19. * 1 point

Mark only one oval.

- Red zone
- Yellow zone
- Green zone
- Discuss with ED faculty
- ARI zone
- Isolation ward
- Fever clinic
- Regular OPD
- Do not know

12. A 32-year-old patient presents from to ED with a history of high-grade fever and dry cough. The patient denies any history of contact or travel for COVID 19. The patient's temperature measures 103 F and HR of 120 bpm. * 1 point

Mark only one oval.

- Red zone
- Yellow zone
- Green zone
- Discuss with ED faculty
- ARI zone
- Isolation ward
- Fever clinic
- Regular OPD
- Do not know

13. A 25-year-old healthy man is worried and comes to ED triage area with concerns about having COVID 19. He has no symptoms but tells you that he recently visited Nepalgunj for some official work. * 1 point

Mark only one oval.

- Red zone
- Yellow zone
- Green zone
- Discuss with ED faculty
- ARI zone
- Isolation ward
- Fever clinic
- Do not know

14. A 54-year-old female presents to ED with history of lower abdominal pain with multiple episodes of vomiting. There is no contact or travel history for COVID 19. The patient looks weak and dehydrated. * 1 point

Mark only one oval.

- Red zone
- Yellow zone
- Green zone
- Discuss with ED faculty
- ARI zone
- Isolation ward
- Fever clinic
- Regular OPD
- Do not know

15. A 24-year-old migrant worker presents to ED with history of body ache and multiple episodes of diarrhea. The patient came to Panauti from Udaypur 6 days ago to work as a construction laborer. * 1 point

Mark only one oval.

- Red zone
 - Yellow zone
 - Green zone
 - Discuss with ED faculty
 - ARI zone
 - Isolation ward
 - Fever clinic
 - Regular OPD
 - Do not know
-

Supplement 3B Protected Intubation ISS scenario

Case progression guide for facilitator: COVID-19 Protected intubation

1. Topic: Approach to protected intubation for COVID-19 patients
2. Goal: to provide an organized, safe working strategy for healthcare providers during high-risk, aerosolizing procedures such as intubation.
3. Learning objective:

At the end of the session, the participants should be able to:

 - a. **Recognize** patients requiring intubation
 - b. Demonstrate **safety measures** when managing the airway of suspected COVID cases.
 - c. and
 - d. Demonstrate **organized stepwise approach** when managing airways of suspected COVID-19 cases.
 - e. Demonstrate **teamwork**.
4. Learner audience
 - a. ED nurses and paramedic staff
 - b. ED interns and physicians
5. Case scenario summary

A 40 year-old male who had fever for 4 days with cough and throat pain. He was having SOB since the last 2 days, severe since that morning.

Critical actions

SN	Critical actions	✓ if Done
1	Minimises staff exposure	
2	Dons full airborne precaution PPE	
3	Informs ED faculty/anesthesia on call	
4	Assigns role	
5	Checks equipment and medication	
6	Connects patient to monitor	
7	IV access with running IVF	
8	Attaches filter to the AMBU bag	
9	Maintains tight seal (V-E two hand grip)	
10	NO bagging	
11	LMA if need bagging	
12	Provides full paralysis	
13	Turns off oxygen before removing BMV	
14	Intubates using bougie	
15	Inflates cuff before bagging	
16	NO auscultation of the lungs	
17	Proper disposal / disinfection of the used equipment	
18	Communicates well with the team/patient/family	

Case stages	Findings	Expected actions	Expected outcomes	Guide for the faculties
Initial settings	A: Patent talking but in distress B: RR 30, Sats 80% on air, use of accessory muscles C: HR 116, BP 100/56, CRT 3s D: Anxious, GRBS: 120 E: TPR 100	Initial assessment Puts patient in monitor, Initiates high flow oxygen Opens IV line and starts IV fluids.	Appropriate safe measures recognizes the need of intubation Calls for help from seniors	O2 doesn't improve much with O2. High risk case
Pre-intubation	A: Patient drowsy B: RR 32, Sats 78%, widespread crackles C: HR 124, BP 92/52, CRT 4s D: drowsy	O2 via face mask IVF started Checks equipment and medication for intubation Assigns role	Physician should recognize and prepare for intubation	Ask what equipment and medication with dose.
Preoxygenation	A: Pt has spontaneous breathing B:Pt doesn't have spontaneous breathing	A: Attaches filter to the AMBU bag Maintains good seal (V-E 2hand grip) No bagging Appropriate positioning of the patient B: Puts LMA	A:Physician should preoxygenate the patient with safety measures. B:If patient doesn't have respiration needs LMA	
Intubation	The medication for induction and paralysis administered	Confirms if patient fully paralyzed Turns off wall oxygen before removing the BMV Uses bougie Inflates cuff before bagging	Physician should intubate the manikin using all safety precaution using appropriate communication team work	
HIGH DIFFICULTY	Patient doesn't respond to treatment Becomes unresponsive	All above plus Verbalizes the need of airway support Verbalizes the need of senior support		Mention signs of airway obstruction and need for intubation
Post-Intubation (If the intubation is successful)	Patient's saturation rises with bagging		Verbalizes that the chest shouldn't be auscultated	Ask about the signs of successful intubation

			<p>Uses LUS/ ETCO2 to confirm tube placement</p> <p>Clamps ETT before disconnecting it from the circuit</p> <p>Verbalizes the need to cover the manikin's face before transfer.</p> <p>Doffs following the checklist</p>	
Difficult Intubation	Physician is unable to intubate	<p>Verbalizes the need of LMA</p> <p>Verbalizes the need of keeping the surgical cricothyroidotomy kit ready</p>	<p>Physician should apply LMA to the manikin using all safety precaution using appropriate communication team work</p>	<p>Mention that it is difficult to visualize the vocal cord and verbalize the features of difficult intubation</p>

Supplement 4: Debriefing template

Performance and Teamwork	Information Shared		Source of Information
Scenario			
Positive feedback on performance from clinical staff			
Negative feedback on performance from clinical staff			
Teamwork concepts observed/discussed			
Additional Notes on team's assessment of performance			
Identified Threats	Information Shared	Source of Information	Suggested Solutions
Medication			
Equipment			
Resources: labs, staff, radiology, etc.			
Miscellaneous			

Supplement 5: Feedback form

KUSMS-ED COVID ISS FEEDBACK FORM

Dear Colleagues

We appreciate your participation in the simulation sessions based on ED protocols specific to the ongoing COVID 19 pandemic. The sessions have prioritized the safety of every ED personnel. Based on your valuable feedback, the quality of protocol and simulation sessions will be upgraded. The responses will be kept confidential. Happy learning!

* Required

1. Email address *

2. Name *

3. Department *

4. Qualification *

Mark only one oval.

MBBS

Staff Nurse

Health Assistant

CMA

Other: _____

Post-simulation feedback

Please respond to the following points as per your participation.

5. It was easy to follow the protocol *

Mark only one oval.

	1	2	3	4	5	
Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Agree

6. Following the protocol will help me manage cases in the real context. *

Mark only one oval.

	1	2	3	4	5	
Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Agree

7. This simulation helped to practice the knowledge gained from theoretical discussions. *

Mark only one oval.

	1	2	3	4	5	
Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Agree

8. This simulation had the potential to identify errors within the clinical environment. *

Mark only one oval.

	1	2	3	4	5	
Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Agree

9. More modules should be practiced for other conditions in the ED. *

Mark only one oval.

	1	2	3	4	5	
Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Agree

10. I would refer to the protocol while managing such cases *

Mark only one oval.

	1	2	3	4	5	
Disagree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Agree

Post-simulation self-reflection

11. Your skills in the triage for ED patients for COVID 19

Mark only one oval per row.

	Least (1)	2	3	4	Most (5)
Before simulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After simulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. Your technical skills in the airway management for COVID 19

Mark only one oval per row.

	Least (1)	2	3	4	Most (5)
Before simulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After simulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Your level of confidence in the triage ED patients for COVID 19.

Mark only one oval per row.

	Least (1)	2	3	4	Most (5)
Before simulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After simulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14. Your level of confidence in the airway management for COVID 19.

Mark only one oval per row.

	Least (1)	2	3	4	Most (5)
Before simulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After simulation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Other comments on this experience

16. Further recommendations for improvement
