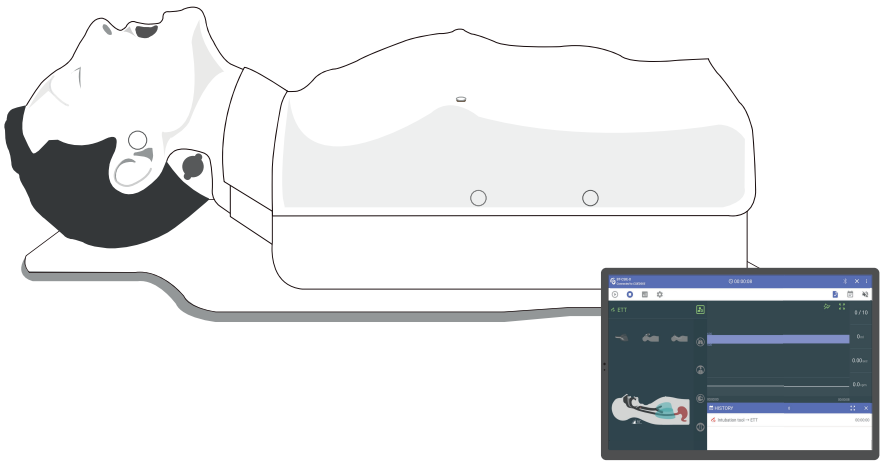


BT-CSIE-D

Difficult Airway Management Training Simulator

USER GUIDE



User Guide



English

Product Information

Product Name	Difficult Airway Management Training Simulator
Model Name	BT-CSIE-D
Manufacturer	BT Inc.
Country of Origin	Republic of Korea



Product Specification

Dimensions	700 X 300 X 240mm
Weight	9.4 kg
Power Converter	Input AC100-240V~, 50/60Hz, 0.4A Output DC 12V, 1.5A
Battery	8EA of LR6(AA, 1.5V)

Customer Service

Website	www.btinc.co.kr
Address	A-313, Samsung Techno-valley, 140, Tongil-ro Deogyang-Gu, Goyang-Si, Gyeonggi-do, 10594, Republic of Korea
Telephone	+82-2-2038-2903
E-mail	bt@btinc.co.kr



Cautions for battery disposal

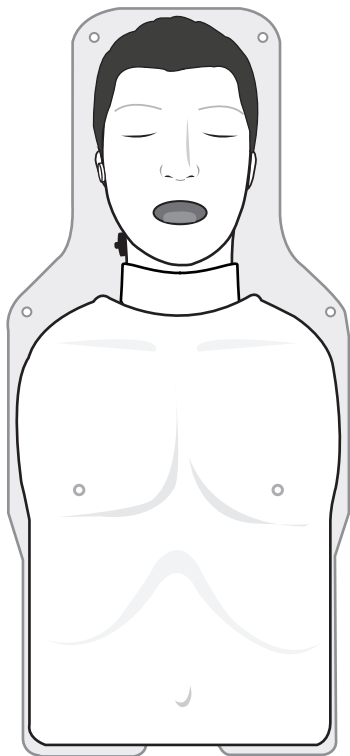
- * Please follow the regulations of corresponding area of the disposal of used batteries

Cautions

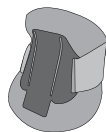
Please read it carefully to ensure correct usage and user's safety through understanding of the product.

- ① Use only components provided or approved by BT Inc.
- ② Do not use the product for other purposes described in this manual.
- ③ If you disassemble or modify the product without any permission by BT Inc, you cannot get the warranty. Also, making imitated or altered products for commercial purposes are prohibited by law.
- ④ During the usage, please contact us after any electricity power off when the product is overheated or smelled something burning.
- ⑤ Keep the product away from water or moisture. If the product gets wet, do not turn it on.
- ⑥ Do not use the product near strong magnetic fields or high voltage power lines.
The product might malfunction due to the electromagnetic waves.
- ⑦ Do not use the product under a weather of lightning. It can cause the product malfunction and increases the risk of electric shock.
- ⑧ Do not use the product with temperatures below 0°C or above 40°C.
(Operation temperature : 0°C ~ 40°C, Storage temperature : -10°C ~ 50°C)
- ⑨ Do not keep the product near hot places such as heaters. Deterioration of product or internal damage might occur.
- ⑩ Never clean the product with chemical substances such as solvent, benzene or thinner, as these may cause ignition or cause the surface deterioration.
- ⑪ BT Inc. can change or adjust the product specification without any notice in order to improve the product.

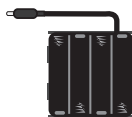
Components



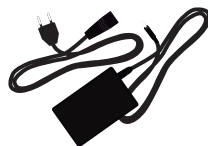
Adult Torso Manikin



Cervical Collar



Battery Holder



Power Adapter



Lubricant



Cricothyrotomy Neck Skin 3ea



Cricothyrotomy Replacement 10ea

* etc. - Storage Case

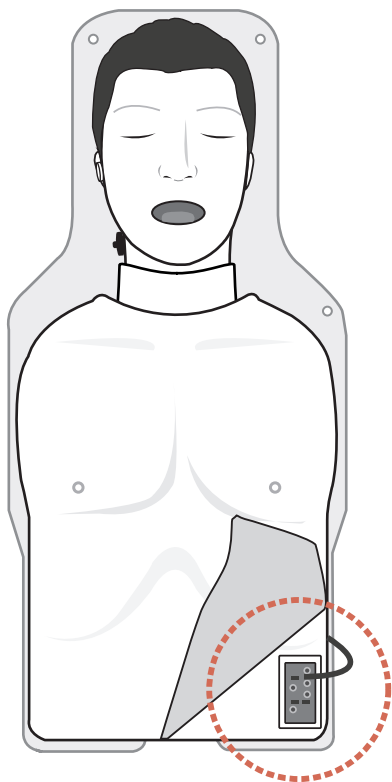
Consumables & Recommended Clinical Supply Sizes

Consumables	
<ul style="list-style-type: none"> • Skin(Face, Torso, Head) • Lubricant • Cricothyrotomy Replacement 	<ul style="list-style-type: none"> • Airway Replacement • Cricothyrotomy Neck Skin

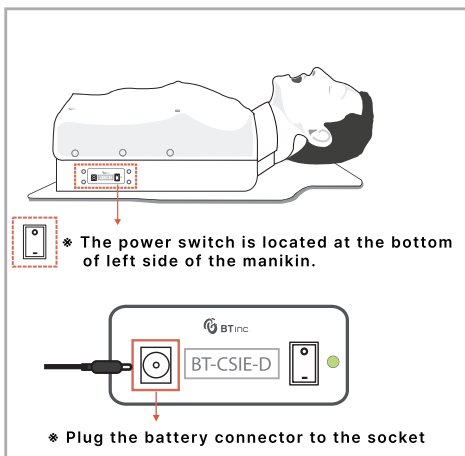
Recommended Clinical Supply Sizes	
ETT	I.D. 7.0~8.0mm
I-gel / LMA	#3, #4
Combi-tube	37Fr
OPA	88mm(Green)
NPA	6~7(24~28Fr)
Tracheostomy tube	O.D : 10~11mm
Cricothyrotomy cathether	I.D : 5.0mm

- The following clinical supply sizes are recommended for use with BT-CSIE-D model.
- Other sizes may cause damage to the products.
- Lifetime of the consumables may differ depending on the skill level of the users.

Insert / Replace Batteries

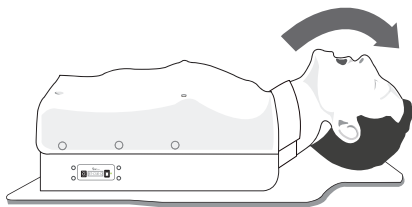


**Battery Holder
for 8 units of AA size Batteries**

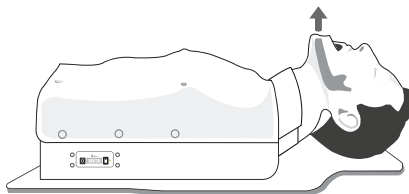


- ① Take off the skin, and pull out the battery holder which is located at the left side of manikin.
- ② Insert the 8 batteries with correct polarities.
- ③ Plug the battery connector into the socket at the left side of the manikin.

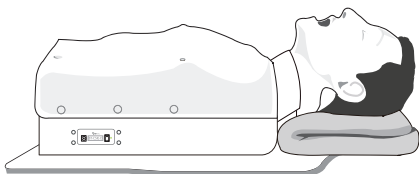
Basic Functions of Manikin



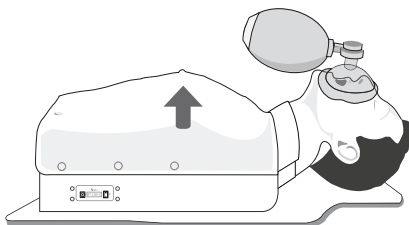
1. Head tilt



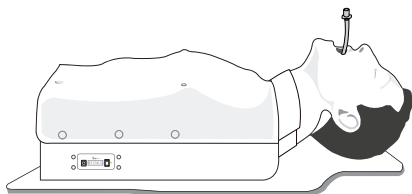
2. Jaw thrust maneuver



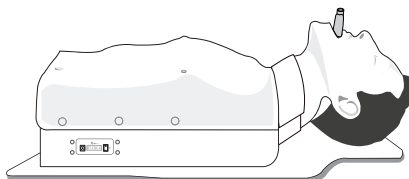
3. Sniffing position



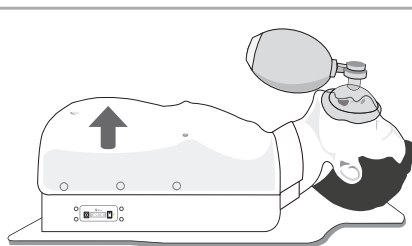
4. Ventilation with the bag valve mask



5. ETT intubation

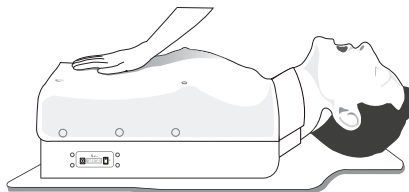


6. SGA intubation



7. Gastric inflation

* The gastric inflation may happens by too strong, too much, too frequent ventilation or esophageal intubation.



8. Deflation by hand

* If the gastric inflation happens, press the abdomen softly to discharge the air.

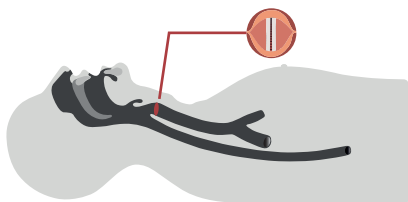
Difficult Airway Management



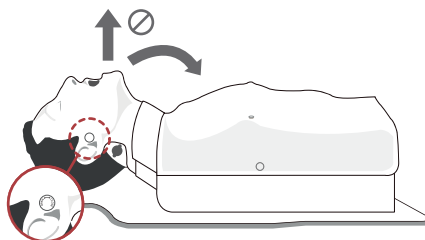
1. Tongue edema



2. Pharynx swelling

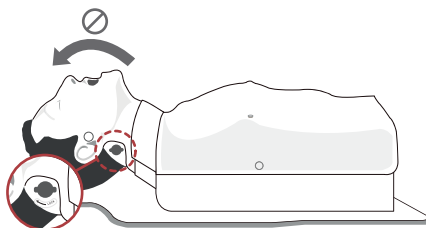


3. Laryngospasm



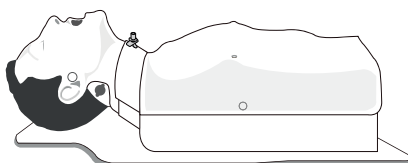
4. Trismus

* To have trismus, turn the bolt located at the chin-ear area clockwise.



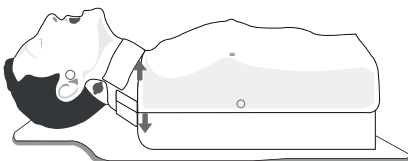
5. Neck lock

* To have neck-lock, turn the knob at the back of the neck clockwise.



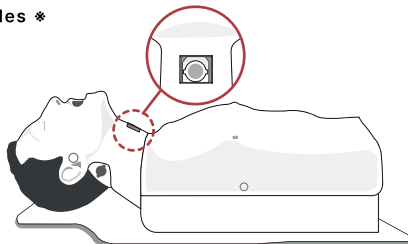
6. Cricothyrotomy

* How to replace Cricothyrotomy Consumables *



① Neck skin

*Detach the velcro of the neck skin attached to the neck.

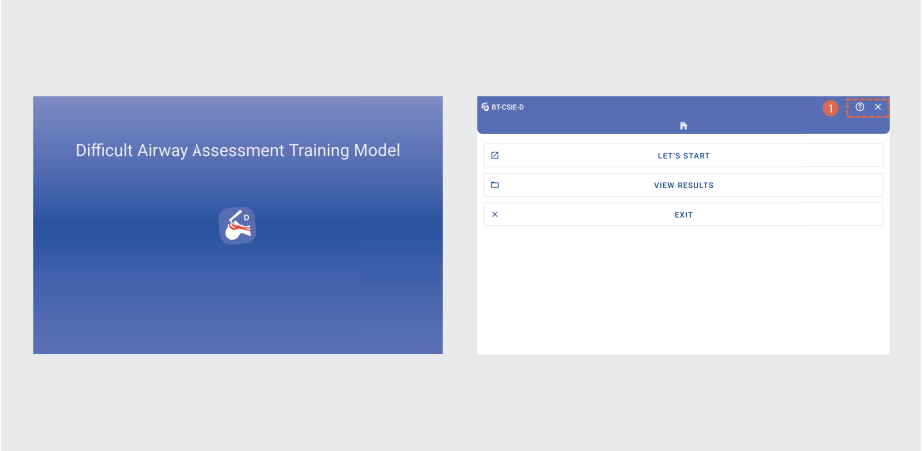


② Cricothyrotomy replacement

*Remove the cricothyrotomy membrane from the holder.
*Caution
(Do not perform BVM ventilation while the membrane is incised.)



Software Home Screen

1. Overview



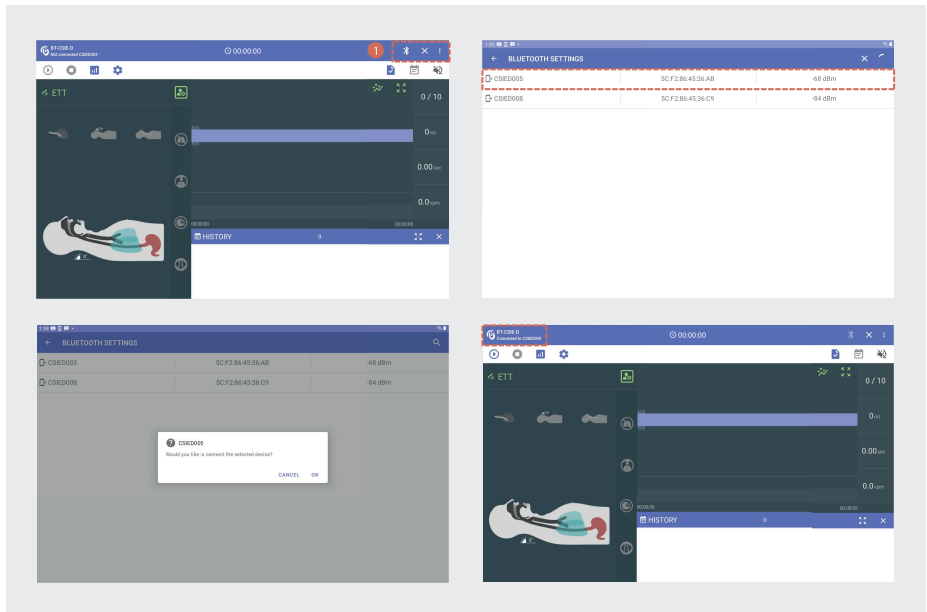
- The difficult airway management simulator simulates clinical scenarios, such as tongue edema and pharyngeal swelling, where securing an airway and performing endotracheal intubation are challenging. This supports medical professionals and students in effectively learning and preparing for complex airway management situations.
- This app creates patient status that require airway management, allows trainees to select appropriate tools, and records the correct execution of procedures for comparative analysis.

① Icon

Icon	Description	Icon	Description
	User Manual		Exit





Bluetooth Setting

1. Bluetooth Search & Register



- Click the 'Bluetooth Setting' icon and open the setting screen.
- Check the serial number of the product and select it when the list of available devices is displayed.
- Each time the app starts, it automatically searches for and attempts to connect to the last connected manikin.
- The Bluetooth connection status is displayed at the top of the practice screen.

⑩ Icon

Icon	Description	Icon	Description
	Connect Bluetooth		Exit
	Disconnect / Connect		Search Device

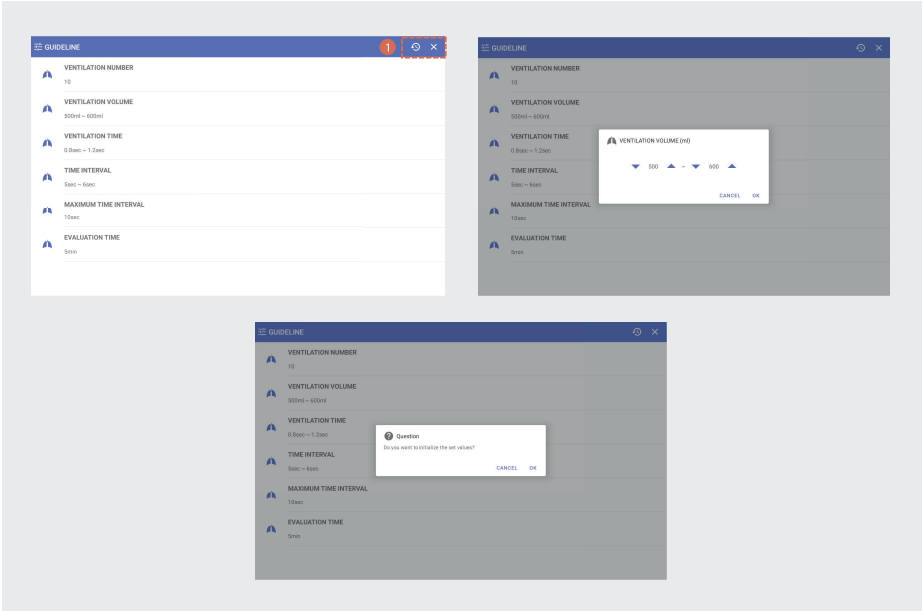
■ Training Setting Screen

1. Overview





- Set guidelines for ventilation training and assessment.
- Select items to be evaluated and set scores during airway management training.
- Important parts of the training can be marked in a checklist and reflected in the assessment results.

2. Set Guidelines

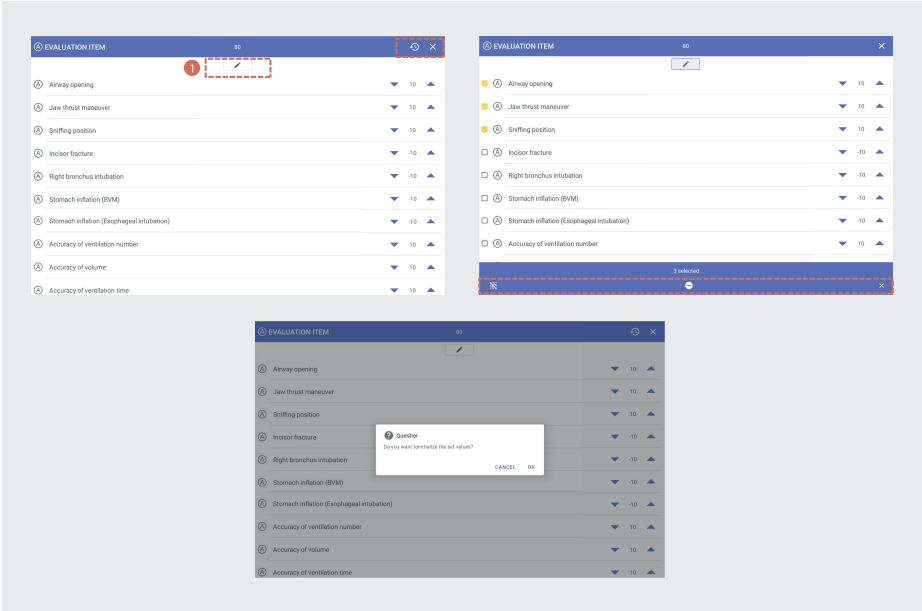


- Set guidelines for ventilation training and assessment.
- To change the guidelines, select and modify the desired items, which will be automatically saved.
- Click the reset button to revert to the initial settings.

① Icon

Icon	Description	Icon	Description
	Reset Settings		Exit

3. Set evaluation items

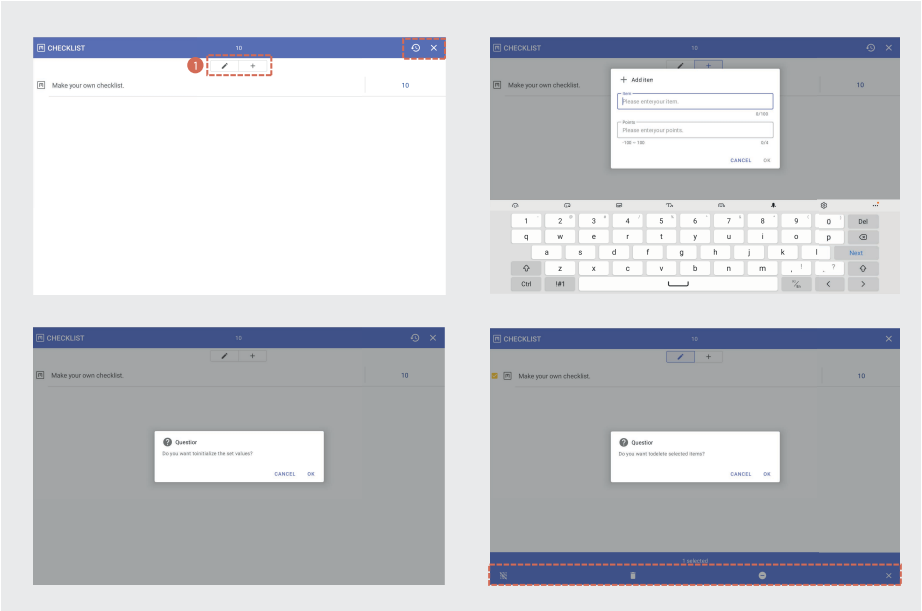


- Select items to evaluate during airway management training and set scores.
- Evaluation items can be selected or excluded.
- Click the reset button to revert to the initial settings.

① Icon

Icon	Description	Icon	Description
	Reset Settings		Exit
	Edit evaluation items		Exclude
	Select all		Deselect

4. Set checklist



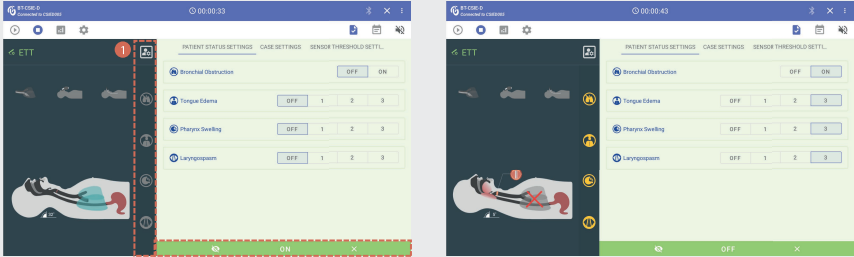
- Important parts of the training can be marked in a checklist and reflected in the assessment results.
- The checklist can be created, modified, or deleted, and scores can be set for each item.
- Use the drag-and-drop to reorder or delete items.
- Click the reset button to revert to the initial settings.

Icon

Icon	Description	Icon	Description
	Reset Settings		Exit
	Edit Checklist		Add checklist
	Exclude		Delete
	Select all		Deselect

Simulator setting screen

1. Set patient status

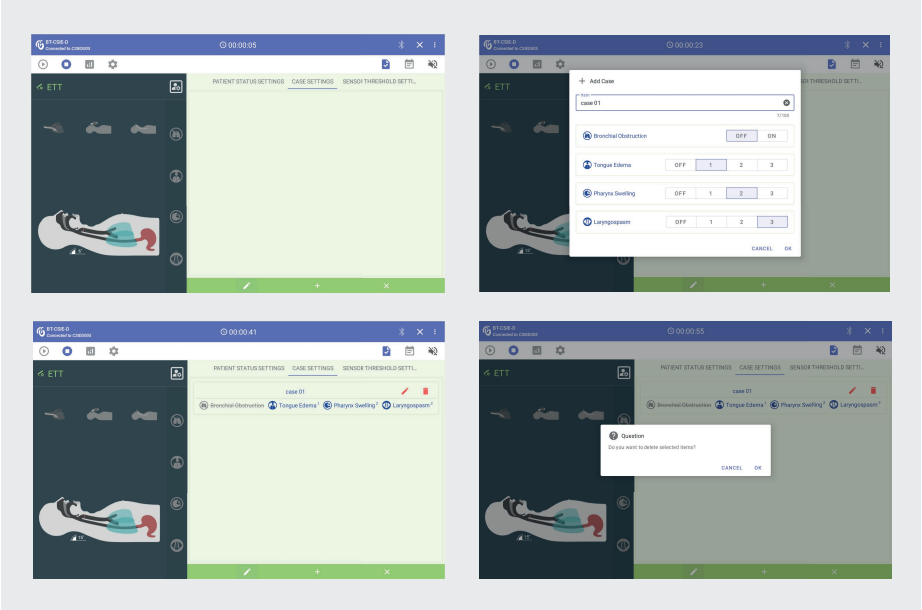


- Simulate difficult airway management situations by setting conditions like "bronchial obstruction," "tongue edema," "pharyngeal swelling," and "laryngospasm."
- Each patient status can be set to one of 3 difficulty levels.

① Icon

Icon	Description	Icon	Description
	Open patient status Settings		Exit
	Bronchial Obstruction		Tongue Edema
	Pharyngeal Swelling		Laryngospasm
	Monitoring ON		Monitoring OFF
	Activate All conditions		Deactivate All conditions

2. Create Cases

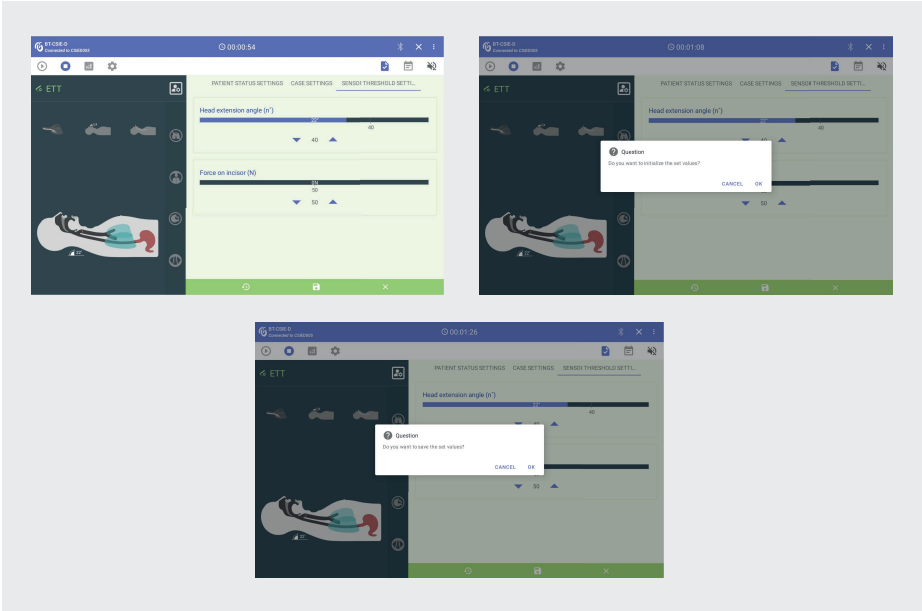


- Create and execute cases by combining various patient status.
- Modify or delete created cases.

① Icon

Icon	Description	Icon	Description
	Run mode		Edit mode
	Add case		Exit
	Edit case		Delete case

3. Set sensor threshold



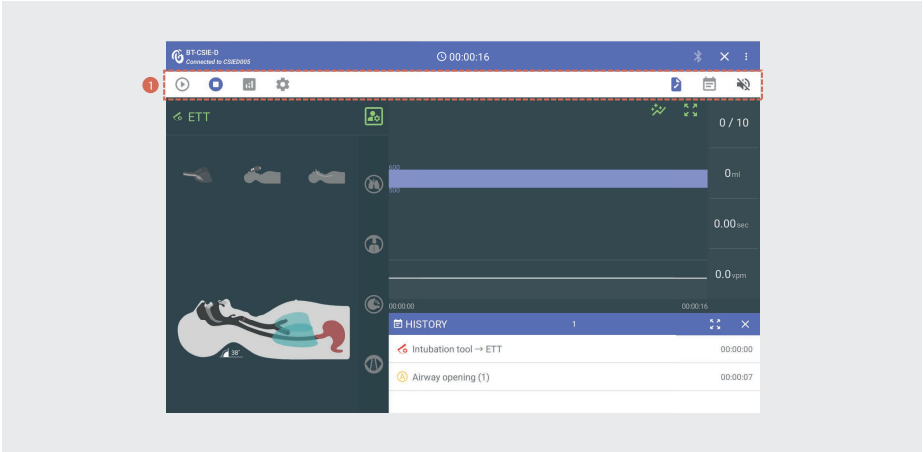
- Set and save the head extension angle required for airway opening.
- Set and save the threshold for tooth fracture during intubation.
- Click the reset button to revert to the initial settings.

① Icon

Icon	Description	Icon	Description
	Reset Settings		Save
	Exit		

Training screen

1. Overview

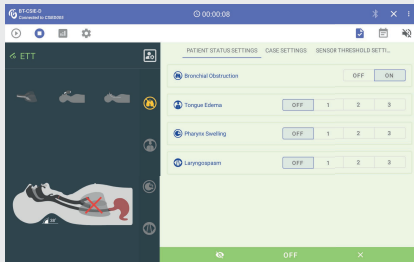


- The training screen visually provides real-time execution of diagnosis and treatment by trainees based on the assigned patient status.
- Evaluates the training process and scores it according to the set evaluation items, reflecting the results.
- Simulates emergency situations by changing patient status in real-time or using the prepared cases. This helps trainees adapt to various environments and experience effective training.

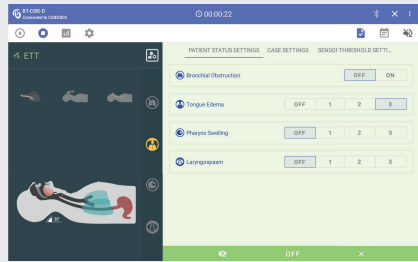
① Icon

Icon	Description	Icon	Description
	Start		Stop
	Results		Setting
	Checklist		History
	Activate Tooth Fracture warning sound		Deactivate Tooth Fracture warning sound

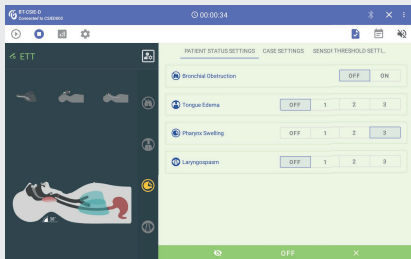
2. Change patient status



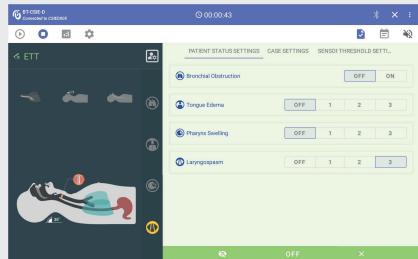
Bronchial Obstruction



Tongue Edema



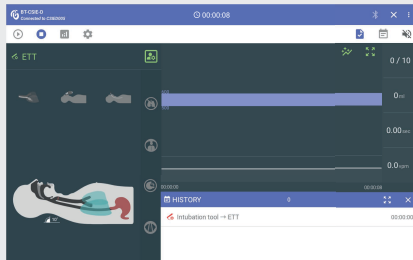
Pharyngeal Swelling



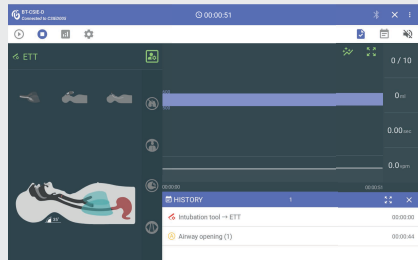
Laryngospasm

- Simulate a condition where breathing is difficult due to bronchial obstruction.
- Simulate a situation where the tongue is swollen, making intubation difficult.
- Simulate a condition where the pharynx swells, narrowing the airway and making intubation difficult.
- Simulate a situation where laryngeal muscle spasms narrow or block the glottis.

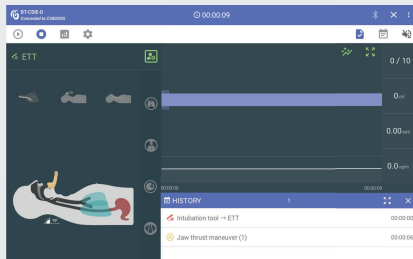
3. Airway opening



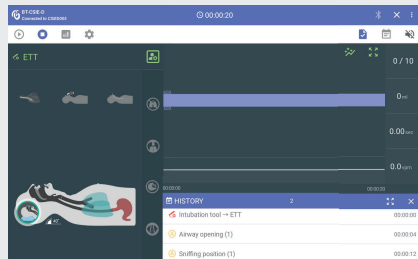
Head-tilt / Chin-lift (Airway blocked)



Head-tilt / Chin-lift (Airway opened)



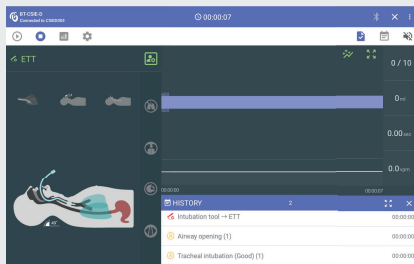
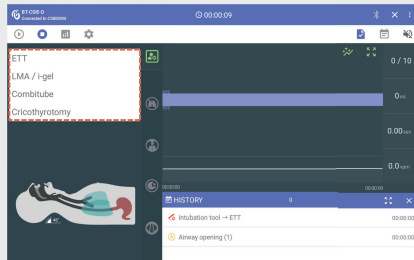
Jaw Thrust maneuver



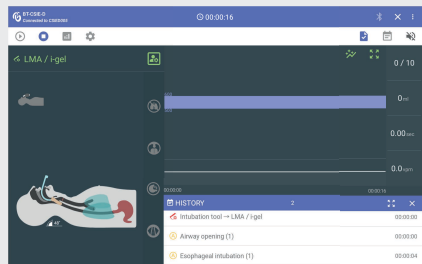
Sniffing Position

- Practice Head-tilt / Chin-lift.
- Practice jaw thrust maneuver.
- Practice securing the airway using the sniffing position.

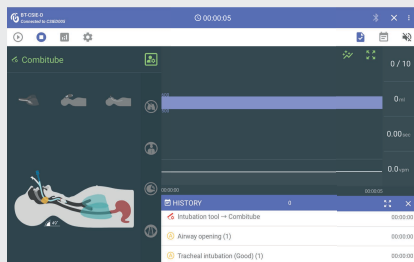
4. Select the intubation tools



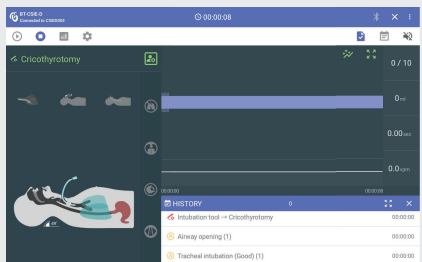
ETT



LMA/i-gel



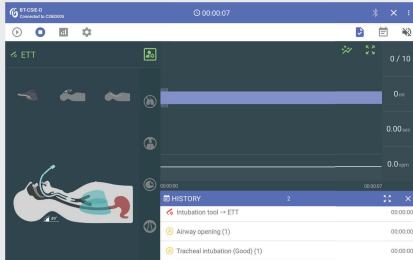
Combitube



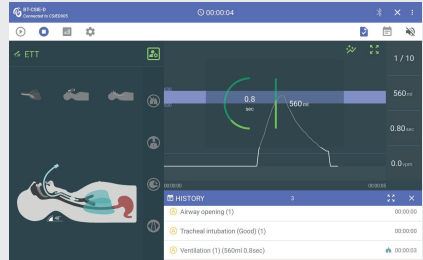
Cricothyrotomy

- Practice with various intubation tools.
- Practice intubation using an ETT (Endotracheal Tube).
- Practice intubation using an LMA or i-gel.
- Practice intubation using a Combitube.
- Practice cricothyrotomy.

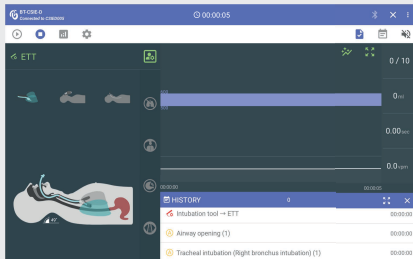
5. Training Endotracheal Intubation



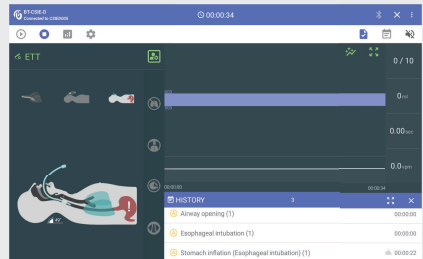
Correct intubation



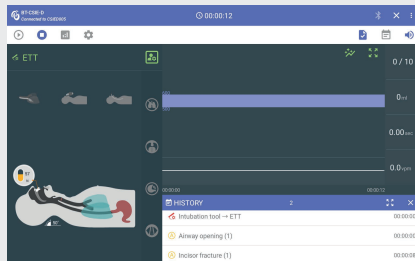
Correct intubation (While ventilation)



Right mainstem intubation (Intubated too far)



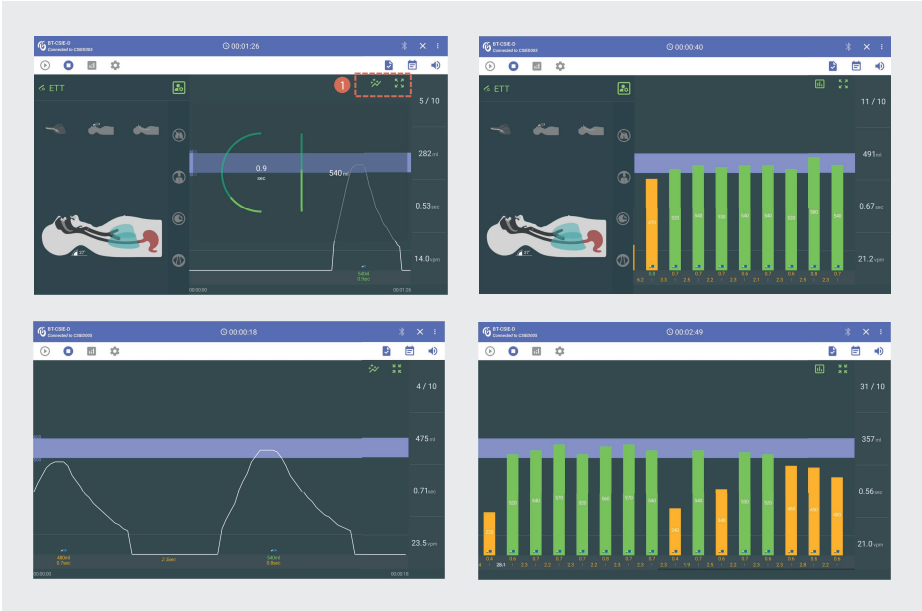
Esophageal intubation



Incisor fracture





- Verify that the tube is in the correct position within the correct depth or confirm over-intubation into the right bronchus
- Gastric inflation can be checked when air is ventilated to the stomach in case of esophageal intubation
- Measure the force applied to the incisor during intubation to determine the risk of tooth fracture.

6. Training Ventilation

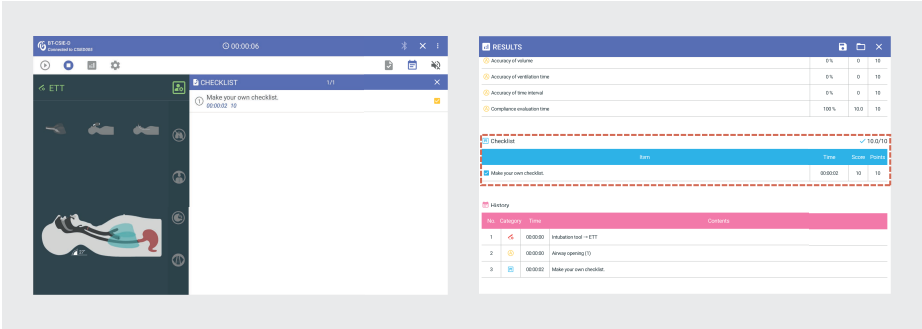


- Real-time display of ventilation volume, ventilation time, ventilation rate per minute, and the number of ventilations.
- Training results are visually provided in line and bar graphs, and users can zoom in or out as needed to view details.

① Icon

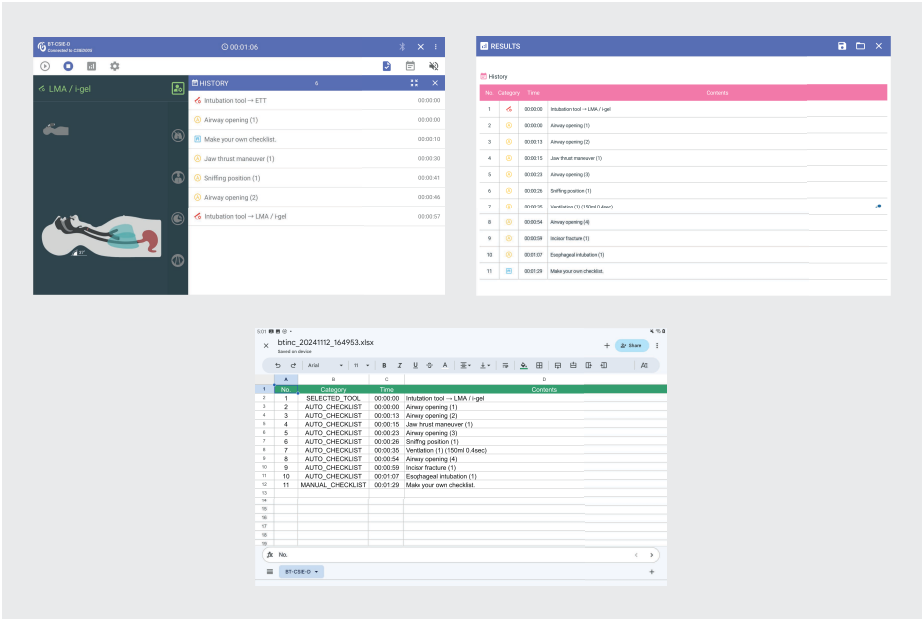
Icon	Description	Icon	Description
	Line Graph		Bar Graph
	Zoom In on Graph		Zoom Out on Graph

7. Checklist



- Checklist items can be selected or deselected, and the check status and execution time of each item are recorded.
- Checklist results are summarized in table format for easy reference, and displayed in the practice results.

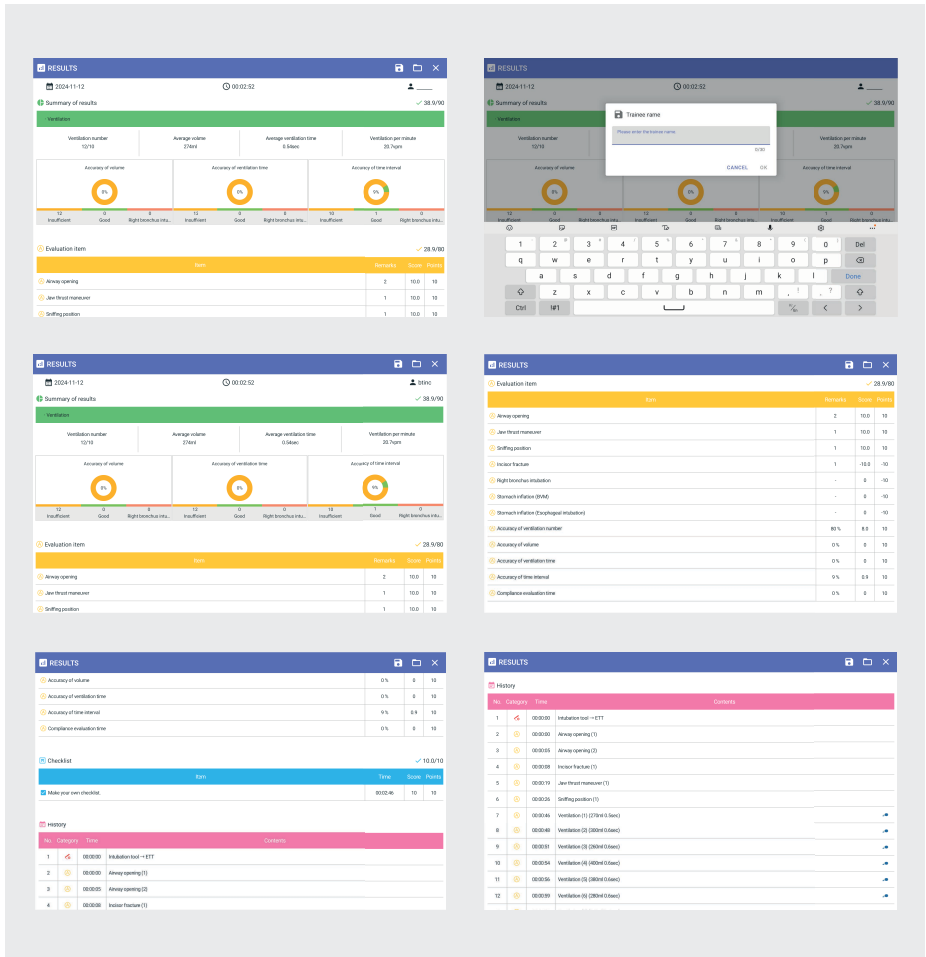
8. History



- The process of treating patients and the results from the checklist are automatically saved in the history. This allows trainees to debrief and learn from their performance.
- Saved history can be viewed on the results screen and can be exported in Excel format if needed.

Result Screen

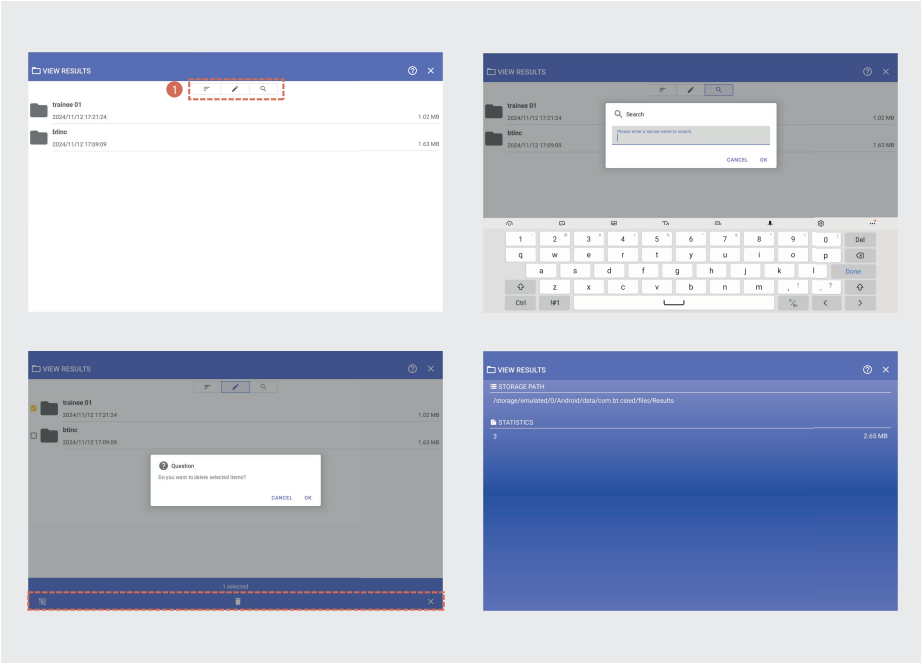
1. View and Save the training results



- Results of ventilation are visually summarized in graph form, allowing trainees to review their performance at a glance.
- The results of evaluation items and checklist are summarized in table format. Scores for each item and the total combined score are provided, enabling trainees to analyze and understand their training results.
- All training steps are recorded chronologically in the history, providing trainees with an opportunity to review their practices and identify areas for improvement.










View Results Screen

1. Managing Results

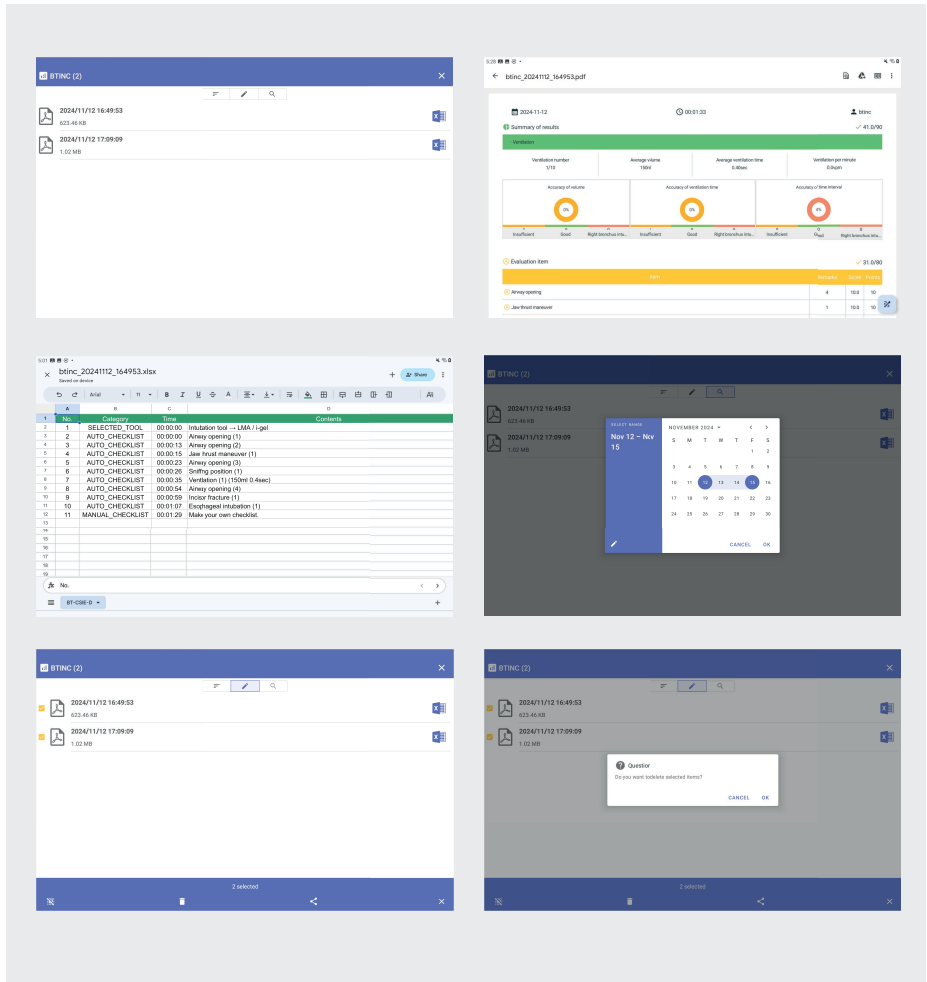


- Results are stored in folders separated by trainee names.
- Users can easily search specific practice results or sort folders as needed.
- In edit mode, users can delete saved result folders, making it easy to manage unnecessary files.
- The storage information window provides the location and information of the saved results.

① Icon

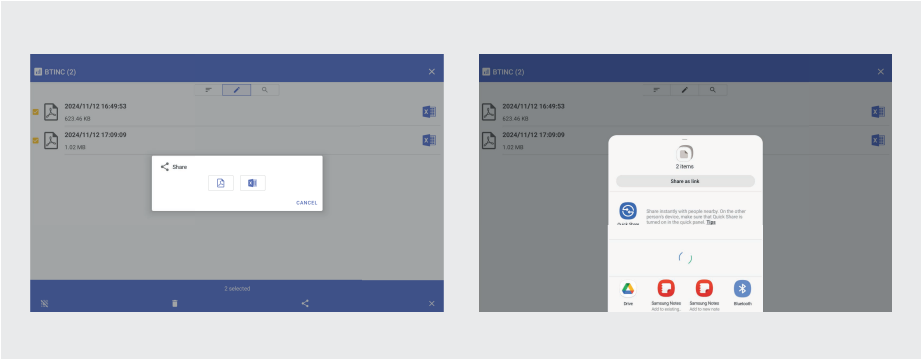
Icon	Description	Icon	Description
	Exit		Sort Settings
	Ascending Sort		Descending Sort
	Edit		Search
	Select All		Deselect
	Delete		

2. Review Results



- Users can select a practice results folder to view files sorted by date.
- Result files are available in PDF and Excel formats, allowing users to open and analyze results in their preferred format.
- Users can find specific results based on saved dates by using the search function.
- In edit mode, users can delete saved practice result files, making it easy to organize unnecessary files.

3. Export Results



- In Edit mode, the saved result files can be easily exported.
- Users can export results in Excel format, print them for sharing with others, or send them to other platforms if needed, facilitating efficient information management.

① Icon

Icon	Description	Icon	Description
	Exit		Sort Settings
	Ascending Sort		Descending Sort
	Edit		Search
	Select All		Deselect
	Delete		Export Results

BT-CSIE-D

Difficult Airway Management Training Simulator

User Notice

U s e r N o t i c e

This device has received compliance certification for use in professional environments. If used in a residential environment, there may be concerns about radio interference.

* Note: This notice applies only to "Professional Broadcasting and Communication Equipment."

A-313, Samsung Techno-valley, 140, Tongil-ro,
Deogyang-gu, Goyang-si, Gyeonggi-do, 10594, Republic of Korea

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Tel: +82-2-2038-2903, +82-51-903-1144 / Fax: +82 303-3130-0607

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