EmerSim®

Vital Signs Monitor Simulator
for Emergency Care Training

User Manual
Ver.1.0

7th July 2021

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PENGUIN SYSTEM®

Content

Manual version	Date of issue	Content
1.0	2021/7/7	First edition

1. What is [EmerSim®]?

  [EmerSim®] is a product which used for emergency and lifesaving training. In [EmerSim®], the simulated vital sign monitor which is used by the students is called "Monitor". The trainer (instructor) in addition to the "Monitor", can use the screen called "Controller" and can freely change the vital signs value.

  "Monitor" screen
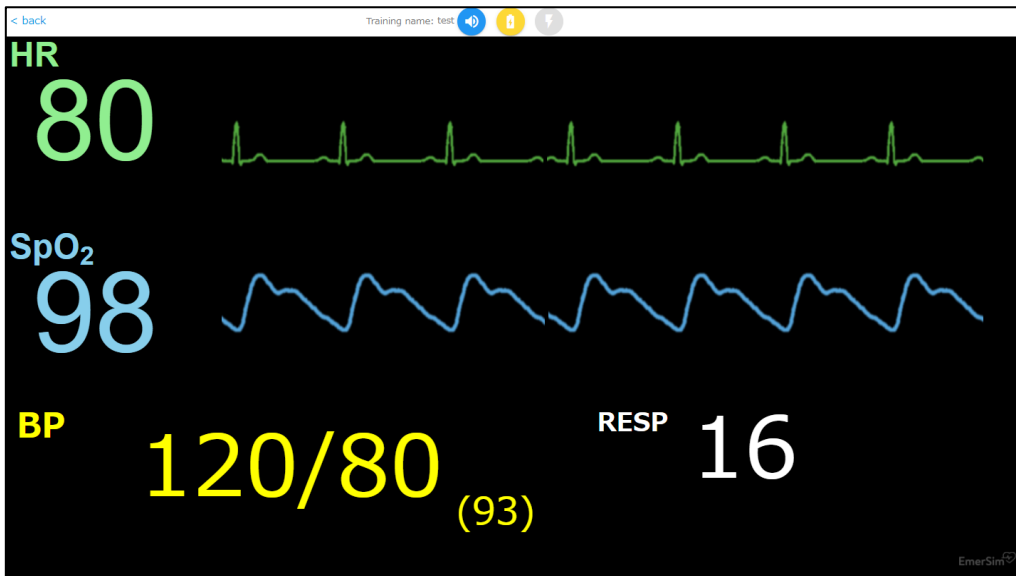
  "Controller" screen

  [EmerSim®] does not require special equipment, use it with your computer, tablet, or other devices with WEB browser.

  In WEB browser, "Monitor" or "Controller" will be displayed.

2. About procedure to use [EmerSim®]

Please refer to separate [Quick Start Guide].

This [User Manual] explains actual [EmerSim®] usage.

3. Let us start!

As explained in [Quick Start Guide], by reserving training in "Training reservation", it is possible to get "Controller" and "Monitor" URL.
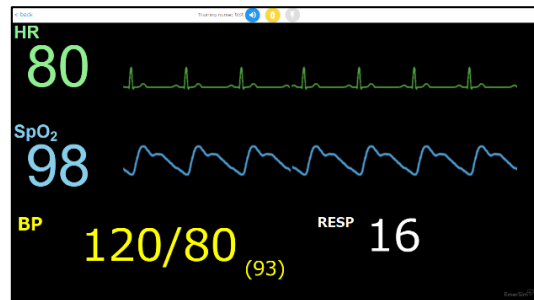
(URL example)

Controller URL　　　:https://xxx.xxx.emersim.jp/xxxxxxxxxxxxxxxxxxxxxxxxxxxx/

Monitor URL　　　　:https://xxx.xxx.emersim.jp/yyyyyyyyyyyyyyyyyyyyyyyyyyyy/

This "Controller" and "Monitor" URL set is referred as "Training" in [EmerSim®]. For a simulation training (scenario training), it is anticipated to have 1 training, a trainer (instructor) and students training together.
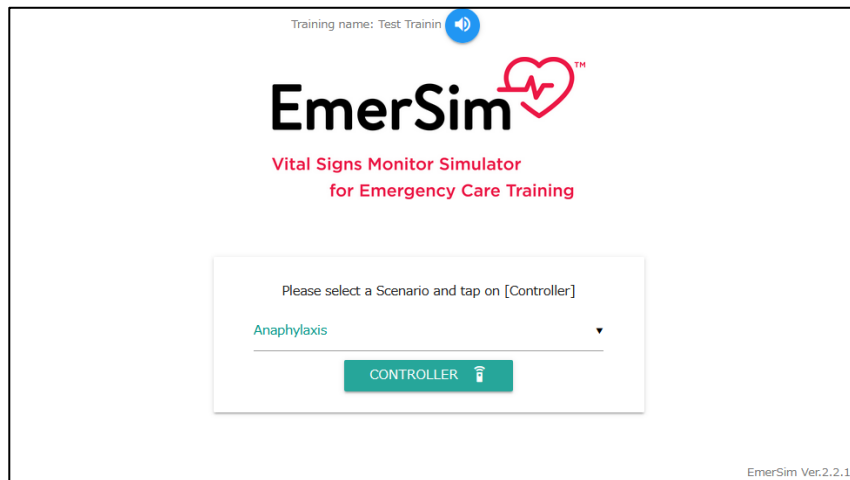

"Controller" screen example　　　　"Monitor" screen example

3.1 Preparing "Monitor"

By accessing "Monitor" URL with computer or tablet browser, following page will be displayed

"Monitor" URL example: https://xxx.xxx.emersim.jp/yyyyyyyyyyyyyyyyyyyyyyyyyyyy/

On top of the screen the training name will be displayed (up to 12 characters) that was set in "Training reservation". On right side is volume button. Let us press "Monitor" button in middle of the screen.
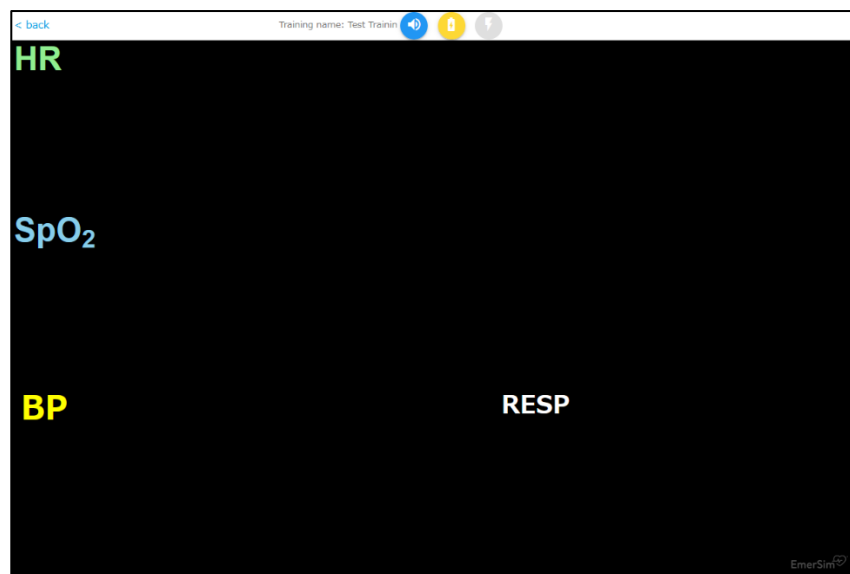

This is "Monitor" screen, as displayed initially. There are 4 types of vital signs displayed, actual numbers and waveforms are not yet displayed.

As students apply heart rate meter, SpO2 meter or other vital sign sensor devices, trainer (instructor) would display corresponding vital sign in the "Controller" by switching it "On", the numbers and waveform of the vital sign will be displayed. Details will be explained in the next section.

3.2 Operating "Controller"

By accessing "Controller" URL with computer or tablet browser, following page will be displayed

"Controller" URL example：https://xxx.xxx.emersim.jp/xxxxxxxxxxxxxxxxxxxxxxxxx/
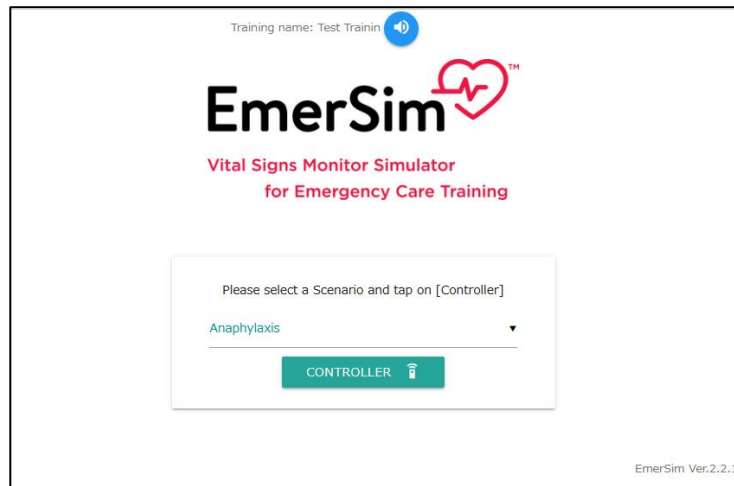
On top of the screen the training name will be displayed (up to 12 characters) that was set in "Training reservation". On right side is volume button. In middle of the screen, select a scenario for the training from registered scenario list. As scenario is selected, press on "Controller" button to proceed to "Controller" screen. (It is possible to change scenario from "Controller" screen later)

"Controller" screen is explained below.

A) About volume related icons

On top of the screen, there are 3 volume icons, the functions are following

Volume adjustment / mute (red means muted, blue means unmuted) Vital sign sound is played on "Monitor" side, by default "Controller" side is muted.

It is possible to play different types of sound effects. As of September 2021, there are 2 "Alert sound", "Ambulance", "Newborn crying", "Nurse call", "phone calling" and "vomiting" sound effects. It is also possible to stop these sound effects and alarm.

As each vital sign exceeds its thresholds, alert sound will be played. This button is used to stop the alert sound. It may be useful in situations where trainer (instructor) pauses training for explanation without changing vital signs.

B) About defibrillator (electroshock) related icons

On top of the screen, there are 2 defibrillator (electroshock) related icons, the functions are following

By pressing "charge" icon on left side, defibrillator charging sound effect will be played.
As electroshock becomes possible, "charge" icon changes to grey color, and "shock" icon on the left side will change to yellow and blink.
In addition, when the "charging" or "charge complete" sound effects are playing, vital signs volume gets lower. This volume adjustment aimed to assist students firmly recognize charging related sounds.

By pressing "shock" button on the right, electroshock sound will be played. The waveform will also be disturbed because of it.
In addition, these 2 defibrillator (electroshock) related icons are also displayed in the "Monitor". If "Monitor" device supports touch panel, students may also press it.

C) About Scenario and scene

As "Controller" starts up, preset scenario window will be displayed on top right of the screen. [EmerSim®] is a simulated vital sign monitor to perform simulation training (scenario training). Here, the term "scenario" means that, for example, when you want to perform simulation training for emergency response during "anaphylaxis", you will proceed with training according to one scenario. This scenario is described below.

The scenario part is enlarged and displayed. Here, a scenario for training on "anaphylaxis" is used as an example. Under the scenario name "[Emergency] Anaphylaxis", there is a column that outlines the scenario. It is also possible to create your own scenario (which mentioned in later chapter), enter the hospital situation, patient information, etc.

It is possible to set [4 sets of vital sign values]. In [EmerSim®] it is called a "scene".

In example, the first "scene" is "Beginning (normal)". Heart rate, SpO2, blood pressure and respiratory rate values are already preset. Waveforms of heart rate and SpO2 are also preset.

Further, "Onset", "Aggravation", "Intervention" etc. scenes are prepared. By using slide on the right side, it is possible to scroll to view further scenes.

Trainer (instructor) inspects students corresponding situation and changes "scene" accordingly. It is possible to change 4 preset vital sign values with a single click (tap).

Each "scene" has its own situation or patient information. (It is possible to set it)

It is also possible to start scenario over, by selecting scenario from [▼] selection on right side of "scenario" name.

By clicking on "CLOSE" on top right of the screen, scenario list will be closed, like on the screen below.

D) About ON/OFF display on "Monitor" side

In addition, each of the four types of vital signs has an icon for switching ON/OFF display on "Monitor". As students shows action or intention to measure the vital sign, trainer (instructor) may press on corresponding icon of the vital sign to display the vital sign on "Monitor" side.
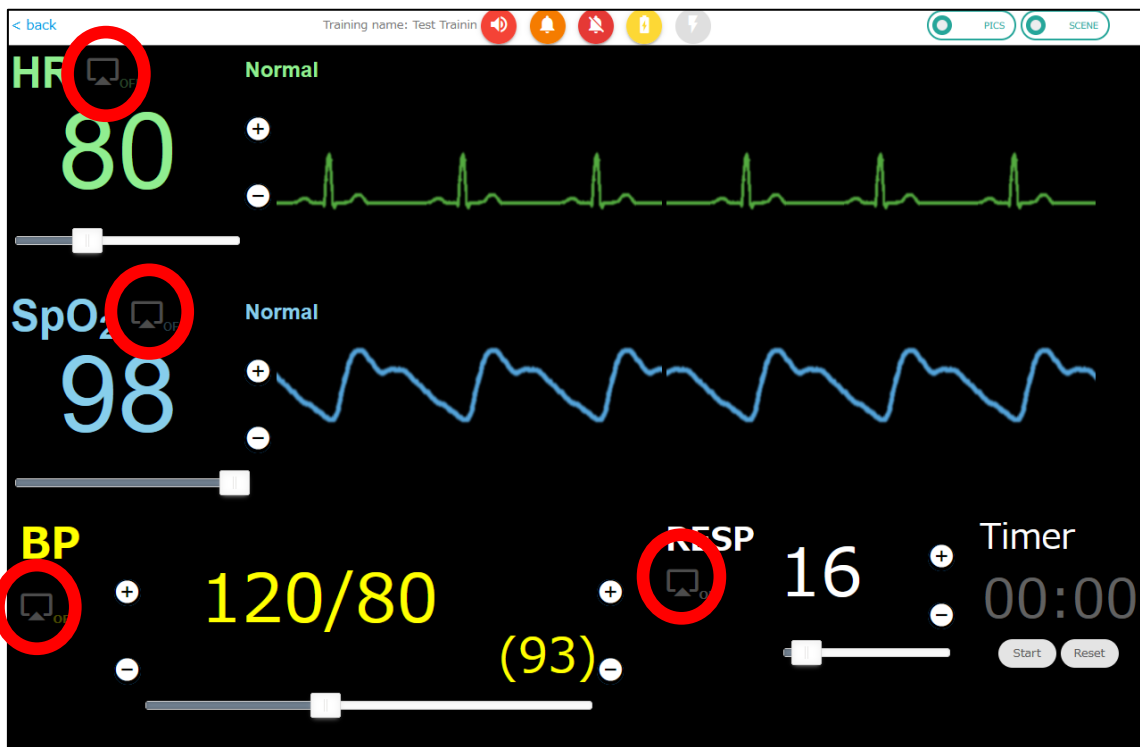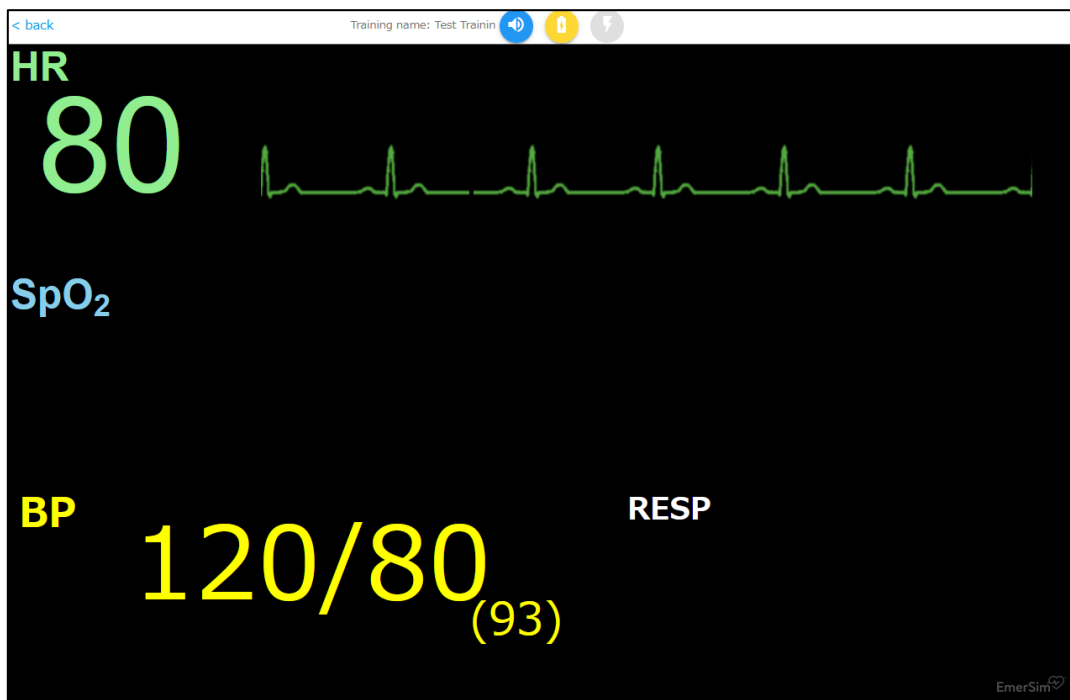
 This is initial state. The display on "Monitor" side is OFF.

 In this state the display on "Monitor" side is ON

In image below, by setting HR and BP state to "display ON" in "Controller" HR values and waveform, BP values are displayed on "Monitor" as example
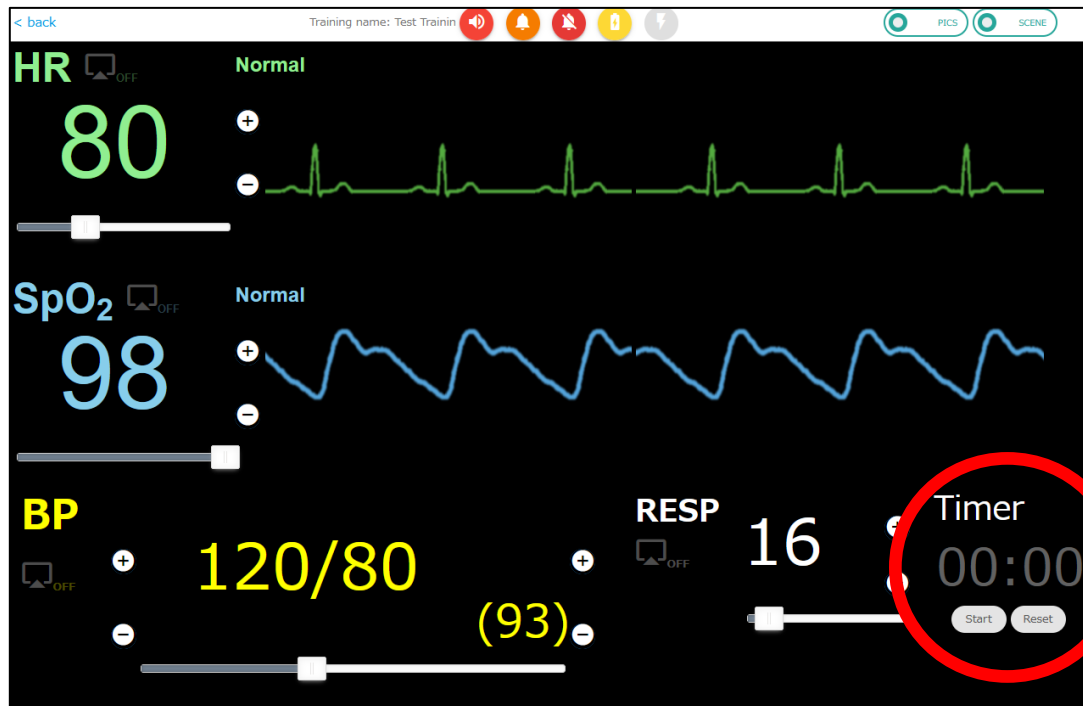
As students further shows action or intention to measure SpO2 or respiratory, by setting "display ON" in "Controller", "Monitor" will be displayed as below.
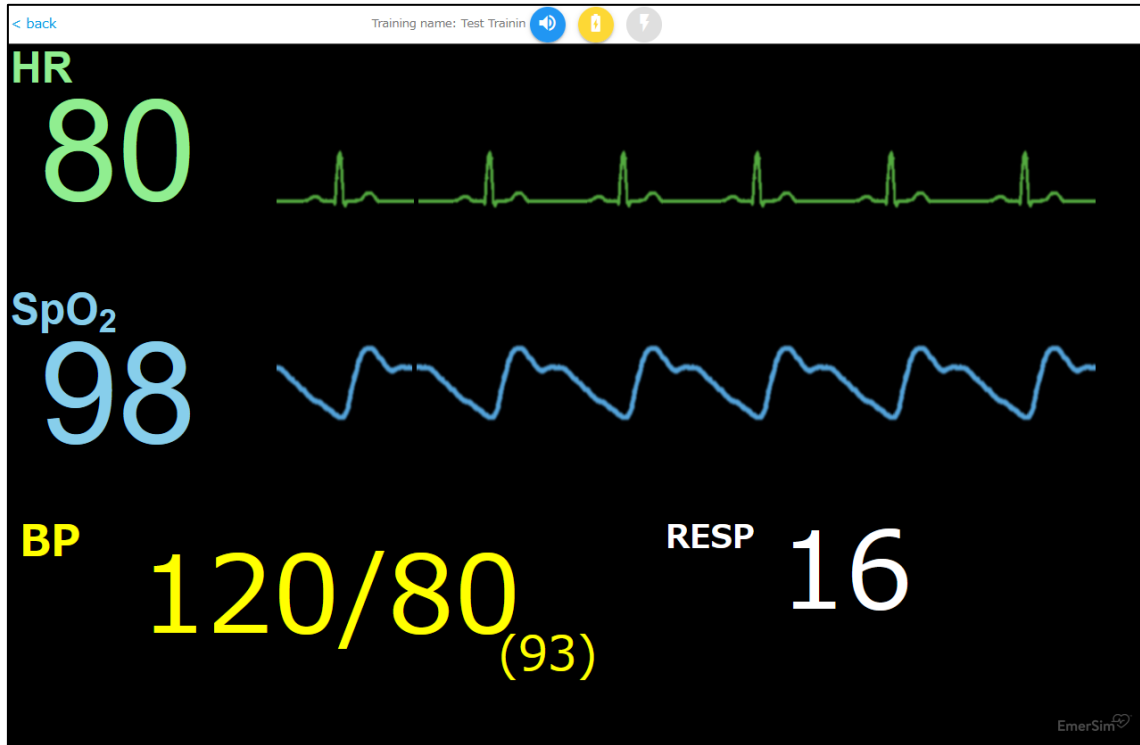
E) About stopwatch function

On bottom right on "Controller" there is "Timer", it is not intended for a specific purpose, so please use it freely.
There is "Start" / "Stop" toggle and "Reset" buttons.

F) About changing vital sign values

    Beside changing the 4 vital sign values at once from the scenario function, it is also possible to freely change each vital sign values. There are three ways to do it.

(1) Using slider bar
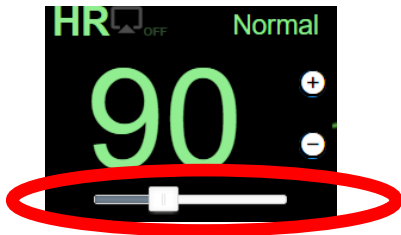
Move slider bar to the left to decrease target vital value. Move slider bar to the right to increase target vital value.

(2) Using keypad
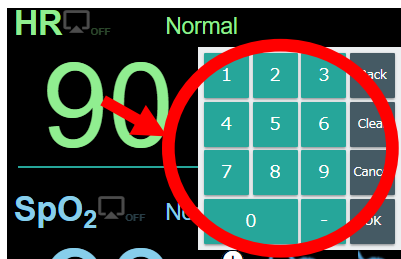
By pressing on vital sign displayed value, a keypad will be displayed After entering the number in keypad, press "OK" to update the vital value.

(3) Using "+" / "-" buttons
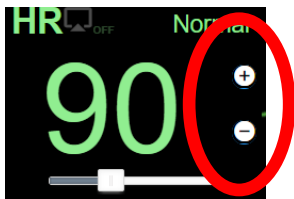
Press on "+" button to increase target vital value. Press on "-" button to decrease target vital value.

G) Selecting Waveform

Below are waveforms that prepared in [EmerSim®]

● Available waveforms for Heart Rate
1) Normal - NSR (Normal Sinus Rhythm)
2) 1° block (First-degree atrioventricular block)
3) 2° block (Mobitz 1) (Second-degree atrioventricular block)
4) 2° block (Mobitz 11) (Second-degree atrioventricular block)
5) Asystole
6) Atrial fibrillation
7) Atrial flutter
8) Junctional
9) LBBB (Left bundle branch block)
10) RBBB (Right bundle branch block)
11) ST elevation
12) SVT (Supraventricular Tachycardia)
13) Torsades de pointes
14) VF (Ventricular fibrillation)
15) VT (Ventricular tachycardia)

● Available waveforms for SpO2
1) Normal
2) Poor perfusion

To change waveform, click on "waveform name" or "waveform" section in "Controller" screen, as shown as red circles in image below.
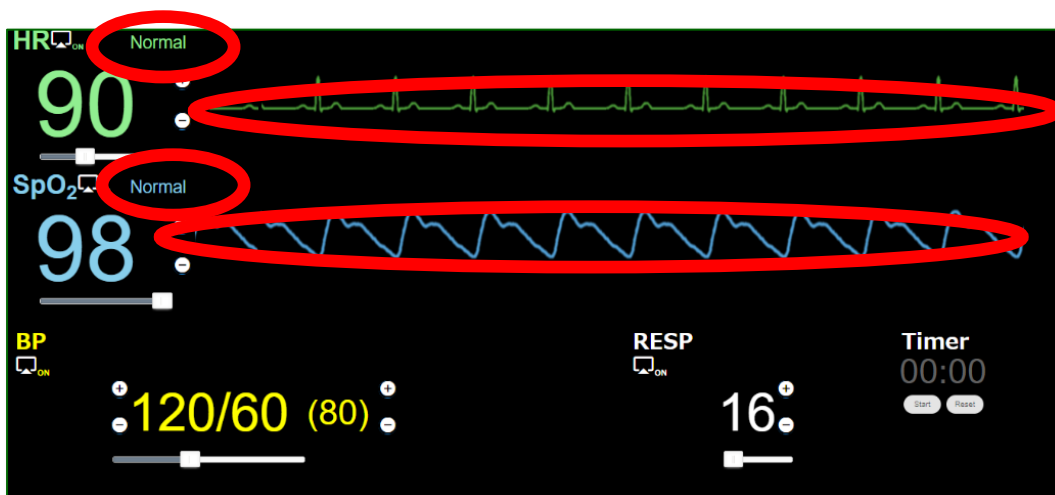
Waveform selection menu will be displayed, please select waveform.
(Example view with PC)

(Example view with smartphone)

H) Displaying custom image

It is possible to display already set custom image over vital sign values.
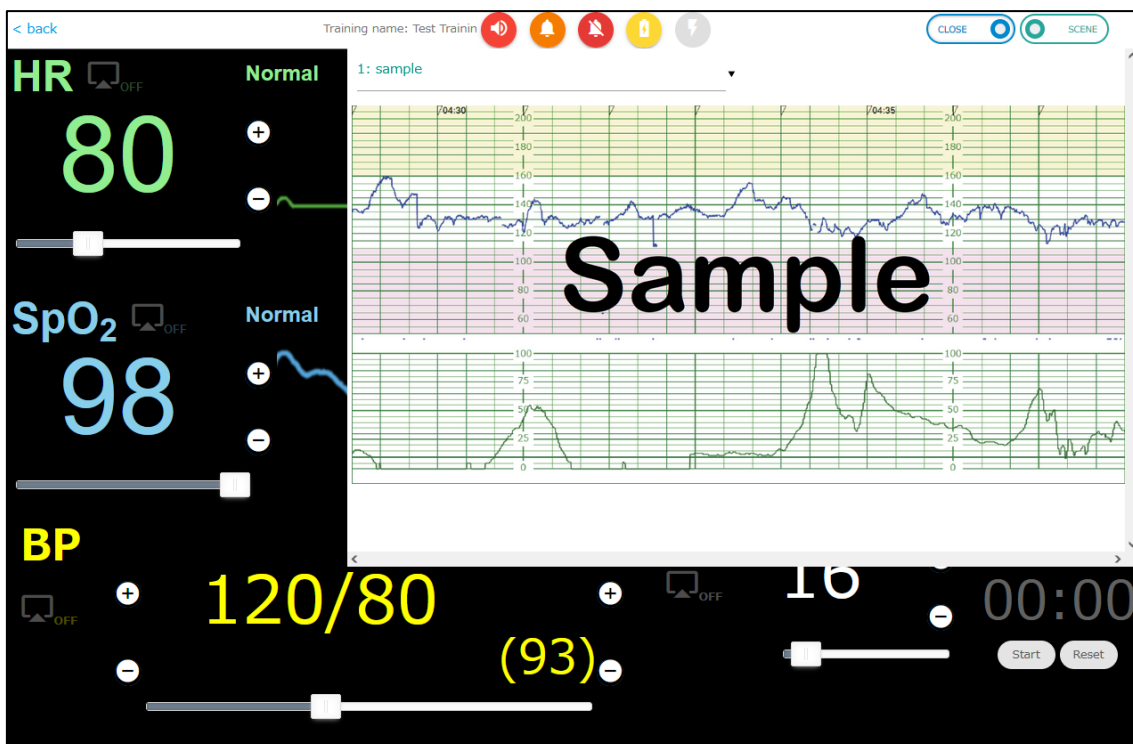(Image setting is explained later in 4-3 chapter)
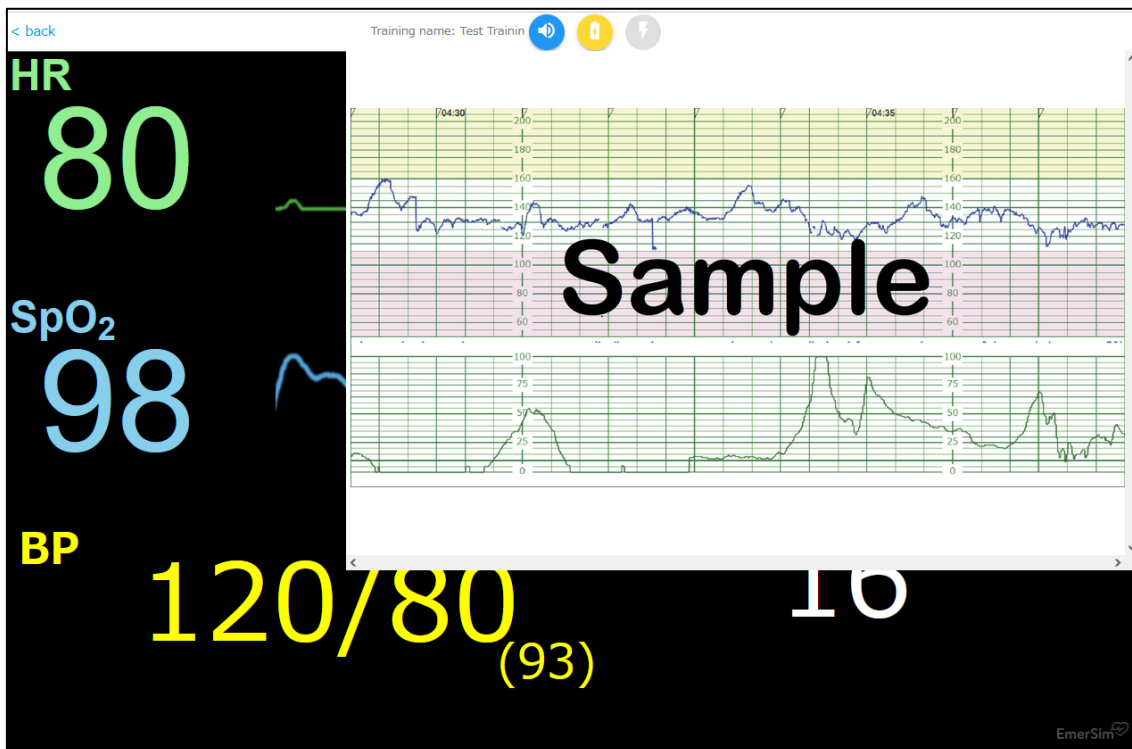On top right of "Controller" screen, press 2nd button from the right, which
is named "PICS".
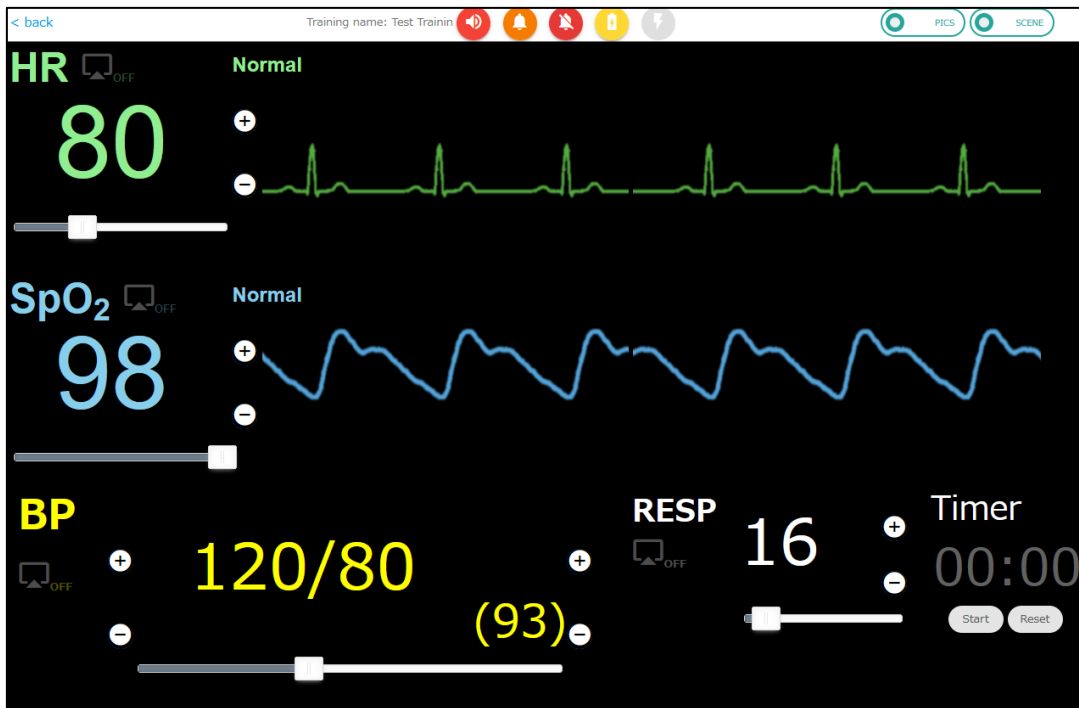
It will be displayed as below. On this screen, click on "Not selected ▼" to select image.
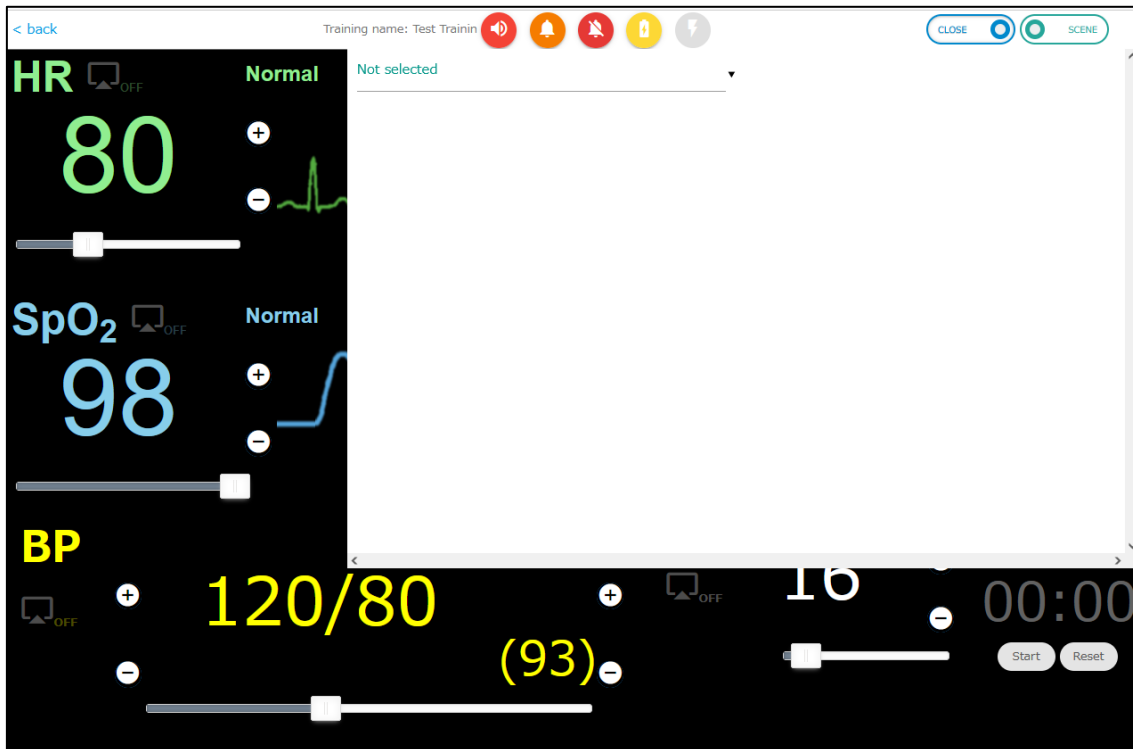
In "Controller", select an image like below, as example.

In "Monitor" it will be displayed like below.

It is a convenient function for trainers (instructors) to set an arbitrary image, such as an X-ray photograph or a photograph that shows the state of the patient and explain it according to the training situation.

4. Adding / Editing scenario, various settings

Adding / Editing scenario and various settings can be done from "Training management site". About accessing "Training management site", please refer to separate [Quick Start Guide].
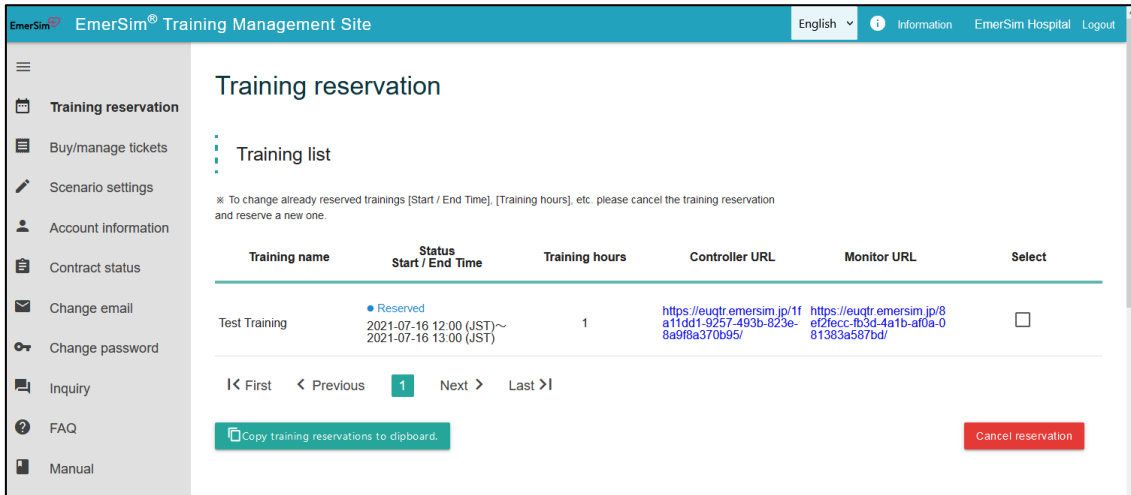
Above is image of "Training management site". On left side of the screen, there is "Scenario settings". Please select it, the screen below will be displayed.
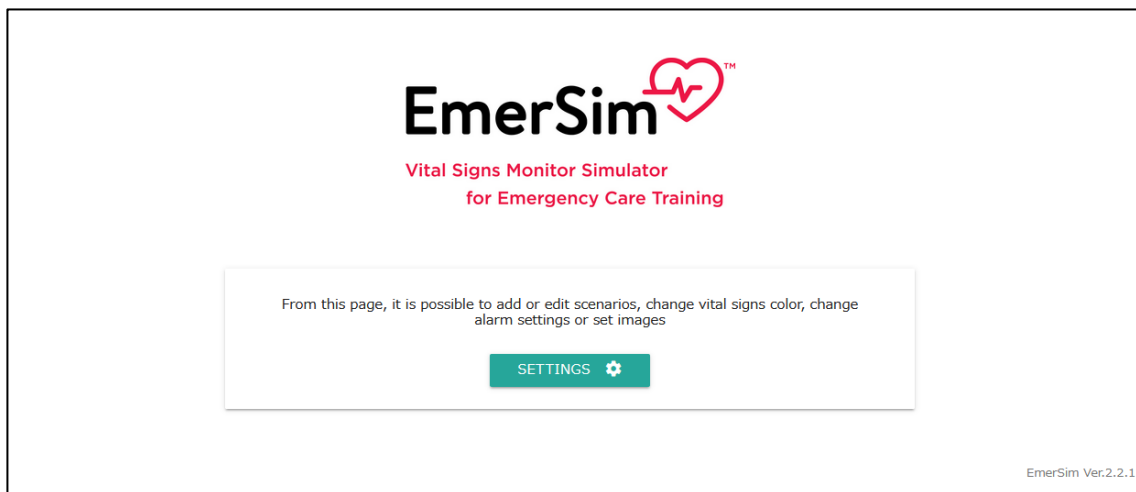
Press on "SETTINGS" button. The following menu will be displayed.
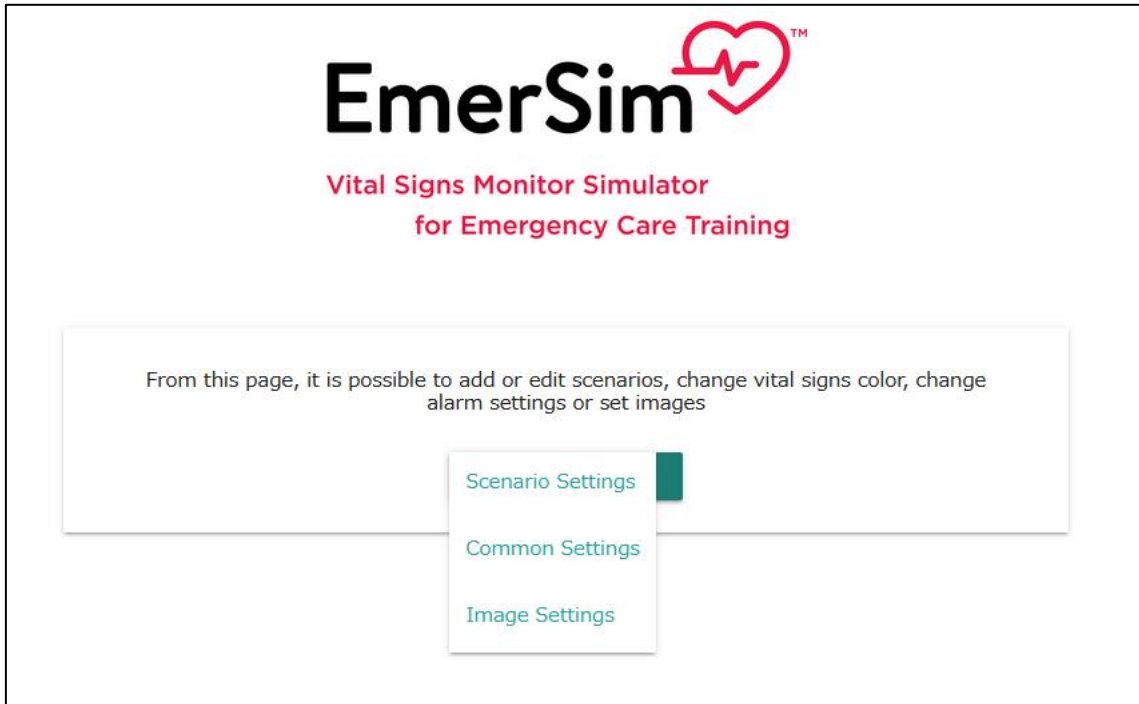
Each 3 items in the menu will be explained in next page.

4.1 Adding / Editing scenario

Below is a screen of "Scenario settings". It is possible to change scenarios order by drag and drop 3-line icon on left side of scenario name.
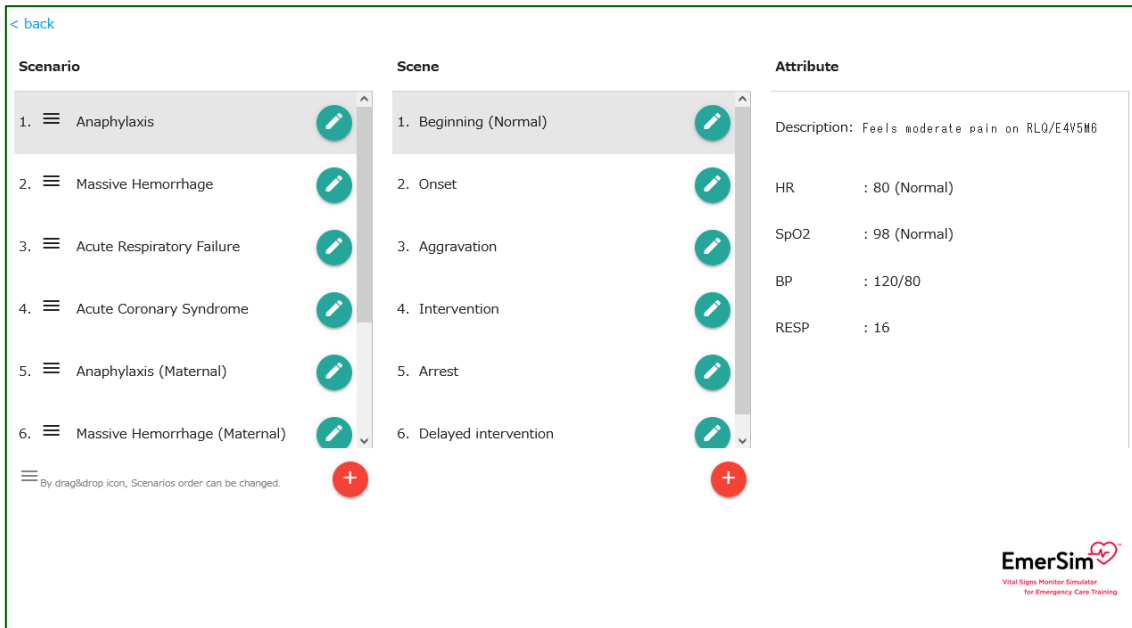
A) Adding scenario

Press "+" red icon to add scenario, which located on left side of screen, in bottom part of "Scenario" section.
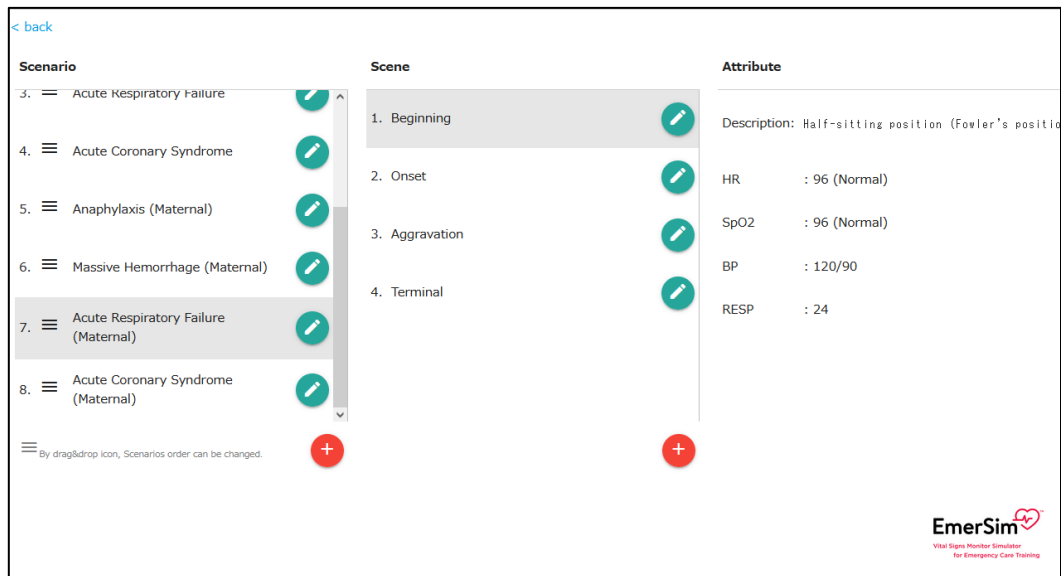

Enter "Scenario Name", "Description" and press "SAVE".

Additionally, by setting "Display" switch OFF, it is possible hide

scenario from scenario list. It is convenient function when having many

scenarios or there need to limit scenario list in "Controller".

B) Adding Scene

To add "Scene", first select "Scenario" from left side of the screen.

Next, press on red "+" icon, which located in middle of the screen, in
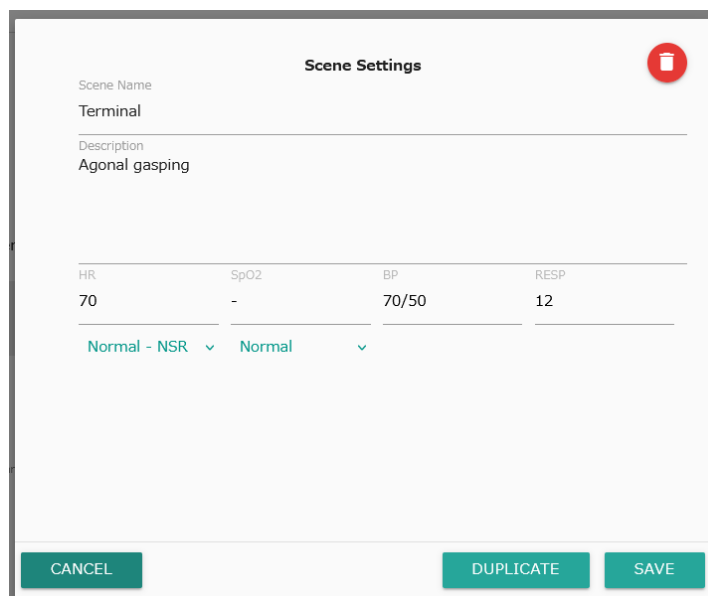
bottom part of "Scene" section.

Enter "Scene name", "Description", each vital sign value and press

"SAVE".

C) Editing / Deleting scenario or scene
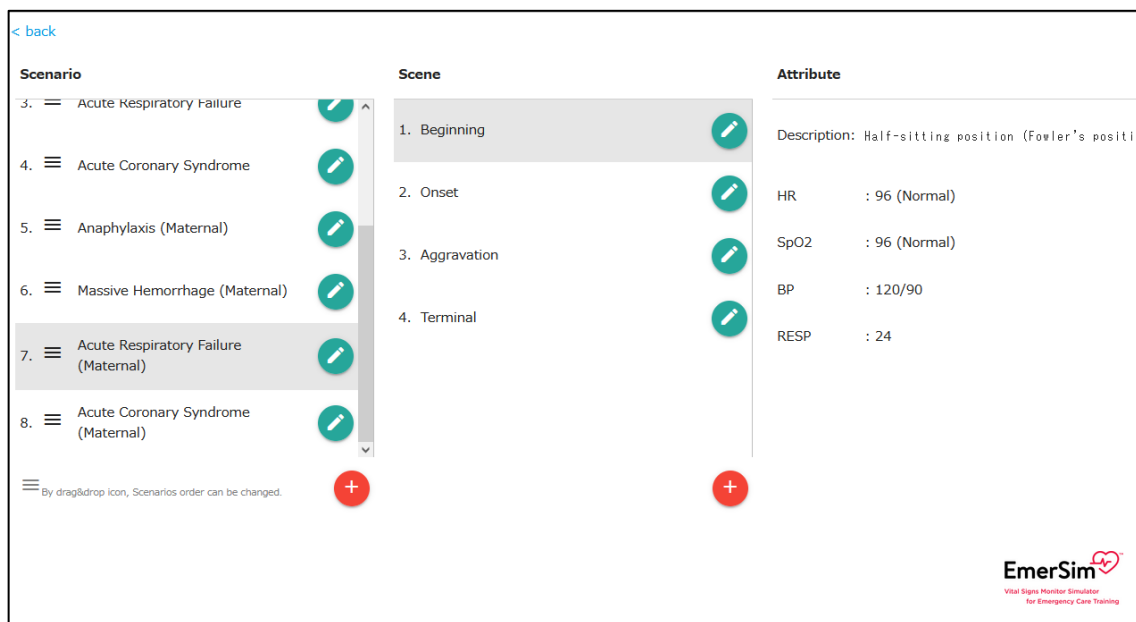
From scenario or scene section select an item to "edit / delete" by pressing on "pen" icon. Following screen for editing will be displayed.

It is possible to freely edit the content. After editing, press on "SAVE" button.

It is also possible to duplicate "Scenario" or "Scene" by pressing the "DUPLICATE" button. Duplicated "scenarios" and "scenes" will be placed at the bottom of the list, so please change the order as appropriate. "Duplicate" is useful to create a slightly different "Scenario" or "Scene".

To delete "Scenario" or "Scene", display target "Scenario" or "Scene" and press on red "trash can" icon.

Before deleting a "Scenario", it is required to delete all the "scenes" in it. If "Scenario" still contains a "scene", the "trash can" icon is displayed in gray, instead of red, and it cannot be deleted. Delete all included "Scenes" before deleting "Scenario".

4.2 Common Settings

It is possible to change vital signs font or waveform color, alert sound playing range (upper / lower limit), enable / disable blinking during alert and alert sound type.

4.3 Image Settings

It is possible to preset up to 12 custom images and display it during training on the "Monitor". Setup image in 3 steps.

Step 1. Select an image slot

Select a slot from 12 possible, where image will be saved. If image is no longer needed, delete it with "DELETE IMAGE" button.

Step 2. Select an image file

From "Browse" button, select image file. Supported file formats are [png] and [jp(e)g].

Step 3. Upload

Press on "Upload" button to set image in the slot. Maximum upload file size is 3MB.

5. FAQ

Many frequently asked questions are posted in the "Frequently Asked Questions (FAQ)" section of our [EmerSim®] site. We are adding more from time to time, so please have a look.

https://emersim.jp/faq-1