



MedVision

**USER
MANUAL**

Simulator PS.P

Pediatric Patient Simulator

ARTHUR



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Introduction

The pediatric patient simulator (6 to 8 years old) is a wireless simulator designed for training healthcare professionals by developing reliable skills to be further applied in treatment of real patients.

True-to-life chest compressions: depth, rate, hand position (Figure 1), ventilation volume a detailed action log.



Figure 1 Correct hand position

The simulator and student actions monitoring and assessment are computer controlled.

The patient simulator body

The patient simulator is a model of a real human. The material of the simulator resembles human skin.



Figure 2 Patient simulator

The simulator has the anatomical structure of a human: true-to-life neck mobility (turning to left or right, forward tilt, backward tilt). Realistic mobility of the neck, arms and legs in all joints.

- finger bones imitation
- ulna bone imitation
- palpable ribs
- palpable shoulder blades

- palpable pelvic bones
- realistic kneecaps.

In addition, the simulator provides **detailed action logging** covering the following features:

- Automatic blinking depending on the patient physiological status (e.g. level of consciousness)
- Automatic pupillary light response reflecting the patient physiological status (Figure 3)

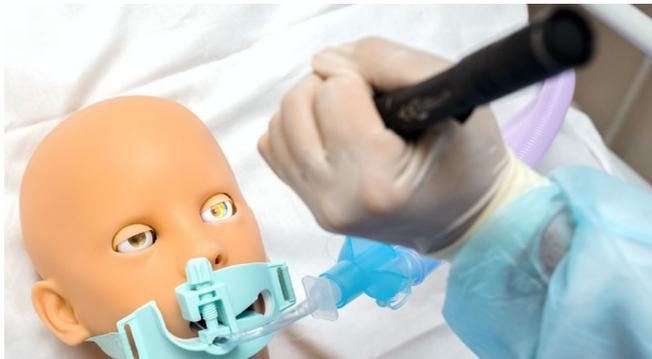


Figure 3 Pupillary light reflex testing

- Tonic and clonic convulsions
 - Bendable & flexible lumbar region
 - Mobility in all joints
-

- Head tilt control
- Jaw thrust control.

Respiratory system

The respiratory system includes:

- Entirely independent right and left lungs. As a result of ventilation of either lung the simulator automatically produces respective breathing sounds and chest rise and fall. During spontaneous ventilation the simulator breathes with automatically controlled respiratory volume and respiratory rate maintaining normal oxygen saturation.
- Airway (soft and inflatable tongue, cricoid, epiglottis, uvula, vocal cords, arytenoid cartilages and trachea imitation) is based on real patient anatomy and intubation experience.

The simulator has an increased sensitivity to errors during mechanical ventilation and intubation (Figure 4). For example, if, in the course of intubation, the tube is fixed incorrectly (deeper than expected), only one lung will be ventilated, and only one side of the chest will rise.



Figure 4 Orotracheal intubation

Sounds

Auscultation of sounds (normal & abnormal) anterior and posterior, includes heart, lung and bowel sounds.

Korotkoff sounds auscultation when measuring blood pressure.

Speech imitation with pre-recorded sounds includes «yes», «no», certain words, coughs and other sounds. In addition, you can download and playback personalized sounds to produce speech and auscultation.

Lung auscultation is performed in 4 points anterior (two points in the upper lobes of the lungs and two points in the lower lobes of the lungs). You can use the Instructor software to configure breathing sounds. Breathing sounds are independent and are not generated by

either lung ventilation in case of spontaneous ventilation.

Heart auscultation is performed in five points: aortic valve, pulmonary valve, tricuspidal valve, mitral valve and secondary aortic area (Erb's point). Heart sounds align with heart beats. Inefficient chest compressions lead to inadequate cardiac output and negative changes in the patient physiological status.

The pulse is activated when palpated at the corresponding points, minimum 10:



Figure 5 Radial pulse palpation

The pulse strength depends on the physiological state of the patient, which can be changed, including in the software.

1 Setting up

1.1 Start-up

To start the pediatric patient simulator:

- Find the tab on the side of the pediatric patient simulator.
- Gently remove the tab to have access to the power button.
- Press the power button (the LED turns on).

Note: The pediatric patient simulator is battery powered. The wireless run time is 4-5 hours depending on the use rate.

To charge the battery, connect the power cord to the port next to the power button on the pediatric patient simulator shoulder and then to a power outlet (220V). You may continue operation during charging.

1.2 Turning on the instructor tablet

To turn on the instructor tablet, press the power button and hold it for a while (until the LED is on).

1.3 Turning off the simulator

To turn off the pediatric patient simulator:

- Find the tab on the side of the pediatric patient simulator.
- Gently remove the tab.
- Press and hold the power button (until the LED turns off).
- Turning off the instructor tablet.

1.4 Turning off the instructor tablet

To turn off the instructor tablet, press the power button and hold it for a while (until the LED is off).

2 Authentication

To run an exercise:

1. Turn on the instructor tablet.
2. Wait for the Simulation Center software to launch (the «Simulation Center software»). If the Simulation Center did not start automatically, launch the program manually by clicking the icon on the desktop.
3. Go to the Instructor section.
4. The authentication menu will open immediately (Figure 2.1). To log in and go to the main menu, enter your username/login in the Login field, enter your password in the Password field and tap Accept. In the authentication menu you can change the software interface language. The languages available are displayed as country flag icons under the Accept button. To change the software interface language, click on the relevant flag icon. To close the program and return to the Simulation Center, tap the Exit icon  located in the lower left corner of the authentication window.

2 AUTHENTICATION

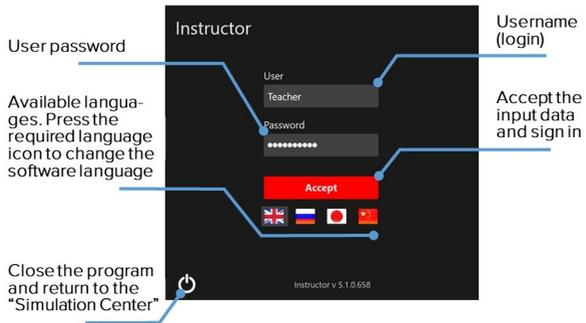


Figure 2.1 Instructor Software authentication window

3 Exercise selection and launch

3.1 Modes

Once a user logs in, the main menu opens with the following tabs available:

- Automated Scenarios. Contains a list of all available automated scenarios (cannot be edited).
- Manual mode. Contains a list of all available manually constructed scenarios (can be edited by the instructor).
- Themes Mode. Contains a list of all available training topics.
- Students. Contains a list of students and study groups.
- Debriefing. Contains a list and review of all completed exercises.
- Connections. Shows the connection status of all simulator elements and battery charge level.
- Exit. Returns to the authentication menu.

3 EXERCISE SELECTION AND LAUNCH

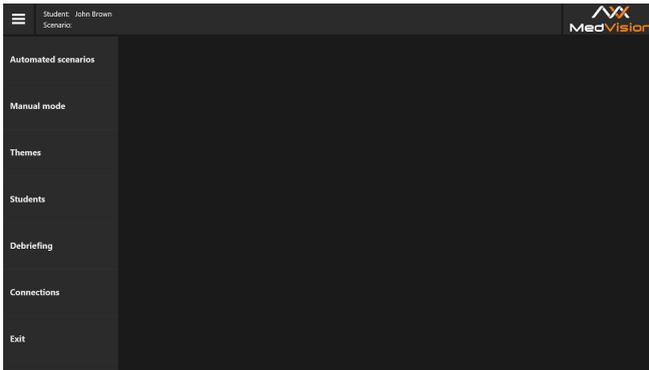


Figure 3.1 Main menu

To start an exercise, do the following:

1. Select a necessary mode, i.e. Automated Scenarios, Manual mode or Themes, and click on its name in the list. After that, the general menu will appear on the right side of the screen containing a list of all exercises available for this mode and the general information for each of the exercises.
2. Select an exercise from the list.
3. Click on the button  in the lower right-hand corner of the screen.
4. In the new window, press Start to activate the scenario or click on Change Parameters to re-set the initial settings of the selected scenario.

To select an exercise from the list, tap its name. The color of the section name will change to red, and its information window (Figure 3.2)/(Figure 3.3) will open in the field to the right.

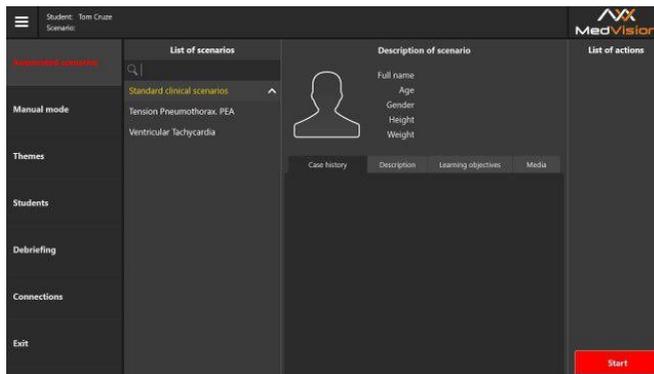


Figure 3.2 The Automated Scenarios simulation menu

The exercise start menu for the **Automated Scenarios** and **Manual mode** sections (Figure 3.2)/(Figure 3.3) contains the main short list of actions, virtual patient data and training materials.

The patient data includes:

- Full name
- Age
- Gender
- Height

3 EXERCISE SELECTION AND LAUNCH

- Weight

Training materials include:

1. **Case history:** the patient's disease/state records as at the beginning of the scenario.
2. **Description:** methodological description of the disease or physical state.
3. **Learning objectives:** a list of basic skills that the exercise is intended to practice.
4. **Media:** extra training materials, including generally accepted diagnostic methods, a list of common symptoms and complications, risk factors, a prescribed treatment algorithm, X-rays and CT scans, laboratory tests, etc.

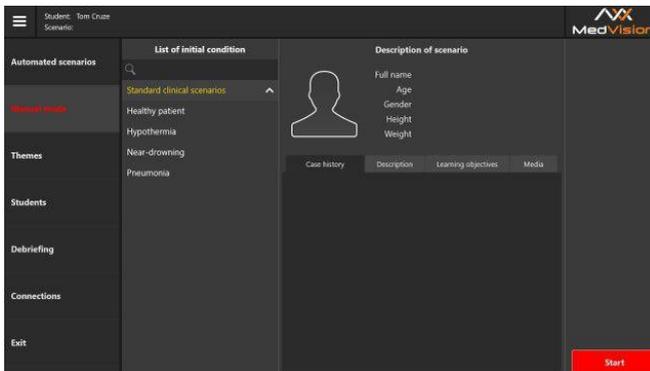


Figure 3.3 The exercise start menu for the Manual mode

3 EXERCISE SELECTION AND LAUNCH

Note: An additional menu is activated after an exercise has been selected.

The exercise start menu for the Themes section (Figure 3.4) contains a list of available patient states for the exercises (themes) and initial data on the patient's vital signs for the selected physiological state.

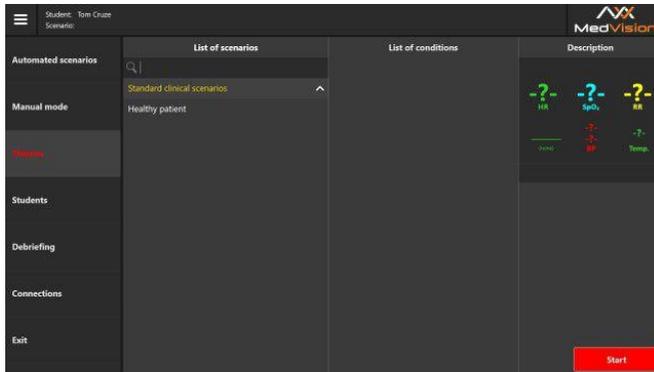


Figure 3.4 The exercise start menu for the Themes

4 Software

The instructor software allows making a training scenario. All exercises are based on real clinical cases. Scenarios are based on real patients' history and case records.

The software controls **the dynamics of vital signs and functions of the simulator**. The software:

- Runs as a background process.
- Interacts with the bedside monitor imitator software (see «Bedside monitor imitator»).
- Sets the current state of consciousness of the virtual patient, its heart rate, respiratory rate and simulated breathing sounds.
- Receives information from simulator sensors during chest compressions, drug administration using syringe imitators with pre-set drugs and dosage.
- Contains different clinical cases to practice various scenarios.
- Defines the virtual patient current vital sign values according to the current running case.

4.1 Bedside monitor imitator

The Bedside monitor imitator software is installed on an individual all-in-one PC and simulates a bedside monitor displaying physiological parameters of a patient. It has a bottom panel of additional functions: blood pressure, TOF, 3 lead ECG, drug administration (Figure 4.1), defibrillation (Figure 4.2), additional patient related information (MRI, CT, case history).



Figure 4.1 Imitation of drug administration

4 SOFTWARE



Figure 4.2 Imitation of defibrillation

Monitoring channels:

- ECG leads: I, II, III
 - Heart Rate (HR)
 - Systolic Blood Pressure
 - Diastolic Blood Pressure
 - Respiratory rate (RR)
 - Breathing patterns (Resp)
 - Oxygen saturation (SpO₂)
 - Body temperature
 - Noninvasive blood pressure (NIBP)
 - Exhaled carbon dioxide (EtCO₂)
-

- Central venous pressure (CVP)
- Pulmonary artery pressure (PAP)

Additional functions:

- Blood pressure
- TOF
- ECG leads display
- Drug administration
- Defibrillation
- Patient data
- Includes CPR monitor

4.2 Scenario Constructor

The Scenario Constructor software allows creating various clinical training scenarios, setting shifts and triggers between conditions using a database of events and actions, saving the script and using it with the simulator.

4.3 Debriefing

The Debriefing software allows viewing the results of completed exercises, discussing and analyzing the results in a different room on a separate computer. The Debriefing software has the following functions:

- Exporting any report of a completed session
- Window displaying video with controls (start, stop, repeat)
- Bedside monitor parameters window
- Vital signs graph window
- CPR graph window
- Detailed CPR assessment window
- CPR assessment printout.

5 Exercise menu

5.1 Automated scenarios. List of actions

The main distinctive feature of the **Automatic Scenarios** section is a pre-installed, invariable sequence of actions and the virtual patient's vital signs.

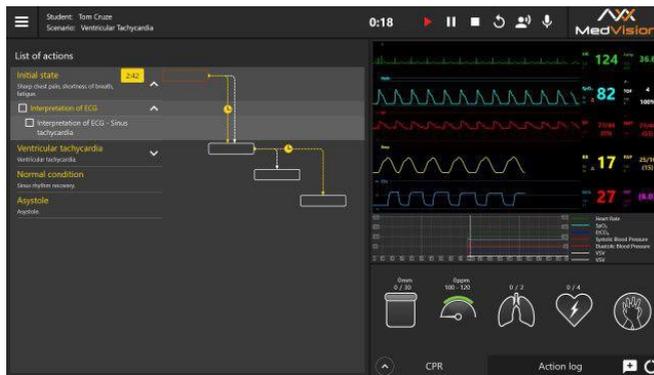


Figure 5.1 The Automated Scenarios simulation menu

A list of the patient's conditions and basic actions to be performed to successfully complete the exercise is located on the left side of the screen.

5 EXERCISE MENU

There is certain timing for the actions indicated next to the patient's state definition. An action or a specific sequence of actions must be completed by the timer is reset.

If the action or the sequence of actions is not completed within a specified period of time, they are considered to be failed and, depending on the course of the exercise, this can also mean the death of the patient and the end of the exercise.

The transitions between patient states are indicated by a dashed line and an arrow. If there is more than one possible state, the transition between them is determined by the performance or non-performance of the actions indicated for the state.

Certain actions marked by icon in the general list must be **manually marked by the user**. Such actions include elements of teamwork (calling for help), the patient body manipulation (bringing the patient to a sitting position), etc.

To mark an action as completed, click on the box next to it . A successfully completed action will be marked with a tick .

Note: Manual marking of actions is mandatory for having them seen by the program and having the exercise successfully completed.

5.2 Patient states. Manual mode and Themes

The main distinctive feature of the **Manual mode** and **Themes** sections is the absence of a pre-installed, invariable sequence of actions and the virtual patient's vital signs. An exercise is managed and controlled by the instructor.

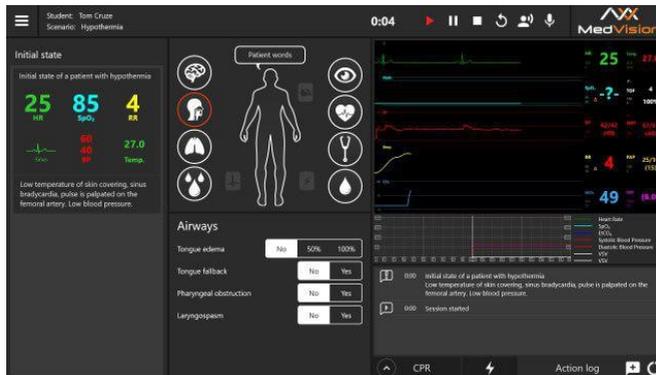


Figure 5.2 The Manual mode and Themes exercise menu

The **Manual mode** or **Themes** exercise menu contains the following sections:

Initial State

The section includes a brief description of the patient's case history at the beginning of the exercise and the vital signs. This section remains unchanged and serves as a source of information.

5.3 Patient state settings

Control bar

Exercise controls are used to manage the simulation (from left to right: exercise time, scenario management, the current scenario restart, microphone (to be used by a student) and speaker for two-way communication with the student).



Figure 5.3 The launched exercise control bar

The exercise currently active indicator (Start Exercise, Pause Exercise) will be red, while an inactive indicator will be white.

Vital signs control menu.

To set a parameter, select its value/type from the drop-down menu or set the parameter using a slider on the scale. Open the required parameter menu by clicking on the icon of the relevant system and follow the instructions on the screen.

The bedside monitor (instructor's copy)

The bedside monitor is used to display vital signs. The data displayed in the software repeats the data of the bedside monitor.

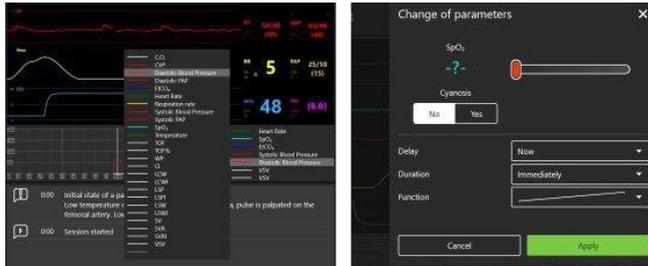


Figure 5.4 Vital signs and prediction graphs settings

As against the Automated Scenarios section, while running an exercise from Manual mode and Themes, the instructor sets the patient's vital signs values. You can change the values using the bedside monitor settings menu (Figure 5.8). To make changes, select the desired scale, click on the scale, make the required changes in the popup window and press .

Patient state prediction graph scales

The scale is located under the bedside monitor menu and displays a graph of the patient's predictable physiological states.



Figure 5.5 The patient state prediction graphs

5 EXERCISE MENU

The patient state prediction graphs are plotted and vary depending on the student's actions. Using this scale, the instructor can foresee the effect of the student's actions. The software initially sets the following parameters by default:

- HR
- Respiratory rate
- EtCO₂;
- Systolic Blood Pressure
- Diastolic Blood Pressure
- VSV
- Body temperature.

The program also allows selecting additional parameters to be displayed as graphs. To add or change the vital signs, click on the empty line (marked grey) or one of the lines with parameters and select the desired parameter from the list opened (Figure 5.4). In total, from 3 to 7 parameters can be monitored simultaneously.

Action log

The actions performed by the student are recorded in the action log. To open the action log, click on the Action log tab in the lower right corner.

The instructor can add notes to the Action log by selecting them from a ready-made list or by adding personal notes.

CPR data bar

Graphical and statistical presentation of CPR parameters and data. The right side of the screen contains the parameters necessary to perform a single CPR cycle: the number of chest compressions and their frequency and the number of bag-valve-mask (BVM) ventilations (Figure 5.6).



Figure 5.6 CPR with BVM ventilation and chest compressions

5 EXERCISE MENU



Figure 5.7 CPR data bar. On the left: the current cycle performance indicators. On the right: the cycle parameters

On the left there is a graph showing the performance data of the current CPR cycle, as well as statistical (numeric) data of all the cycles performed. The CPR performance graph can be moved along the timeline (from the start to the end). To do this, click on the CPR graph and, holding the button, move the graph along the available timeline. When using exercises from the Manual mode and Themes sections, the instructor determines and sets the CPR sequence.

5.4 Bedside monitor settings

While running an exercise from the **Automated Scenarios** section, the instructor determines the type of the bedside monitor and sets its displayed parameters; the parameter values can be set for the **Manual mode** and **Themes** sections as well. To open the bedside monitor settings menu, touch any of the bedside monitor graphs and hold your finger for a while or hover the cursor over it and click the middle button (or the wheel) of the mouse.

The bedside monitor setup menu (Figure 5.8) allows choosing preset menus to operate in the following sections:

- **Anesthesiology**
 - **Reanimatology**
 - **Transport**
 - **Cardiosurgery**
 - **Custom (customization and parameter selection)**
 - **Default**
-

5 EXERCISE MENU

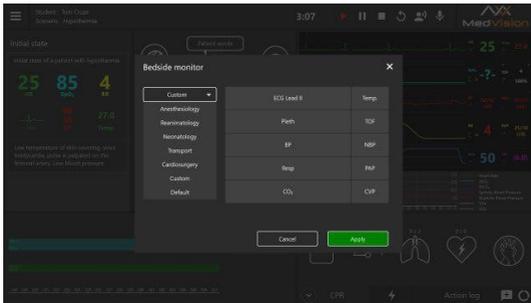


Figure 5.8 The bedside monitor setup menu

Use the following algorithm to select the monitor type (Reanimatology, Anesthesiology, Transport, Cardiosurgery and Custom):

1. Touch any of the bedside monitor graphs and hold your finger for a while (the touchscreen) or hover the cursor over it and click the middle button (or the wheel) of the mouse to open the bedside monitor settings menu.
2. Click on the arrow icon , to open the drop-down list of the bedside monitor available types.
3. Click on the name of a desired monitor type.
4. The selected monitor will be displayed in the box at the top.

Note: Recommended types of displayed parameters are preset for

all menus except for Custom. Do the following to set the displayed parameters:

1. Select any of the parameters displayed to the right of the monitor type selection menu.
2. Click on the name of the selected parameter.
3. Find a new parameter in the list opened (Figure 5.9)/(Figure 5.10).
4. Click on the name of the new parameter.
5. The selected parameter will be displayed in the box instead of the previous one.

Press **Accept** to confirm the changes and close the setting menu or press **Cancel** to discard the changes and close the setting menu.

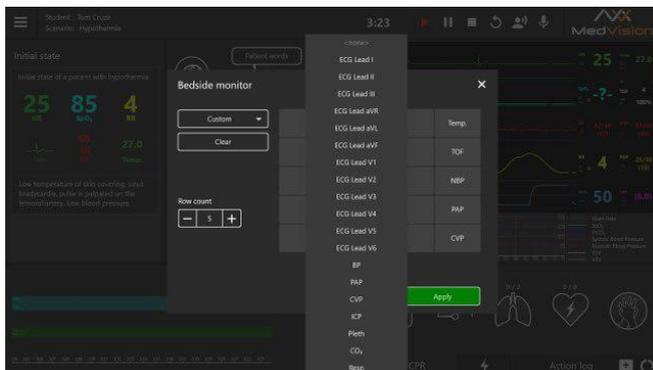


Figure 5.9 Bedside monitor settings menu 1

5 EXERCISE MENU

To discard the changes made without closing the setting menu, press the **Clear** button located under the name of the selected monitor type. To increase the number of displayed parameters, use the **Row count** menu. Press **«+»** to increase or **«-»** to reduce the number of lines.

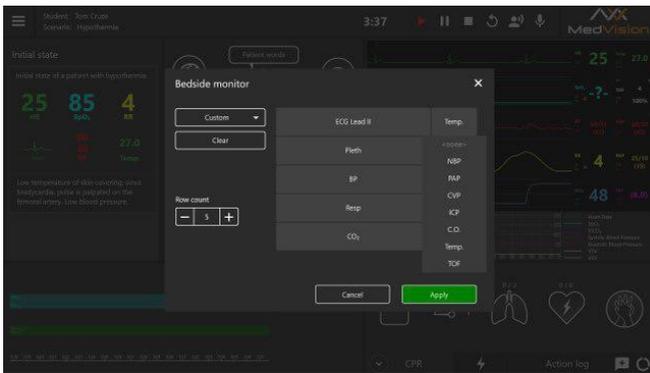


Figure 5.10 Bedside monitor settings menu 2

5.5 ECG rhythm editing

When running exercises from the **Automated Scenarios**, **Manual mode** and **Themes** sections, you can edit the ECG rhythm. To open the rhythm settings menu, hold your finger for a while (the touchscreen) or hover the cursor over the ECG graph (Figure 5.11) and click the middle button (or the wheel) of the mouse. In the pop-up window (Figure 5.12), there is a graph of the current ECG rhythm,

and the selected ECG lead (to change the lead (Figure 5.13), click on the arrow icon and select the desired ECG lead in the drop-down list).



Figure 5.11 ECG graph icon

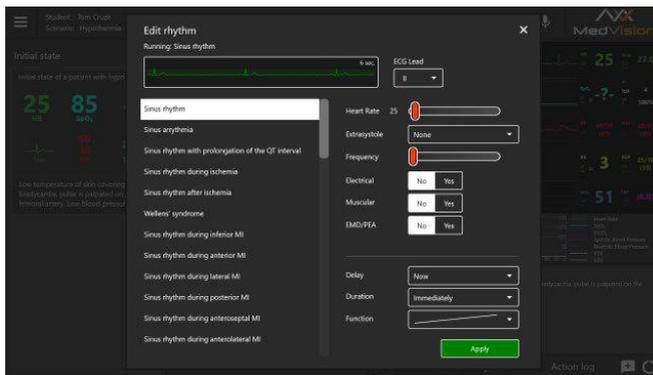


Figure 5.12 Rhythm editing menu

5 EXERCISE MENU

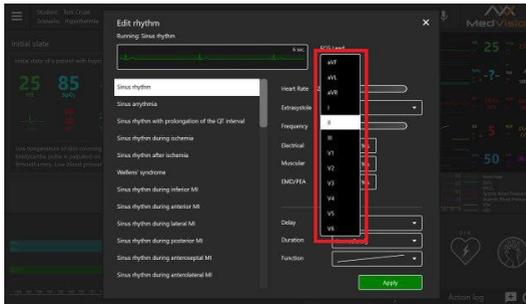


Figure 5.13 ECG rhythm editing menu. ECG lead

The left side of the menu window contains a list of available ECG rhythm types:

- Sinus rhythm
- Sinus arrhythmia
- Sinus rhythm with prolongation of the QT interval
- Sinus rhythm during ischemia
- Sinus rhythm after ischemia
- Wellens' syndrome
- Sinus rhythm during inferior MI
- Sinus rhythm during anterior MI
- Sinus rhythm during lateral MI

- Sinus rhythm during posterior MI
 - Sinus rhythm during anteroseptal MI
 - Sinus rhythm during anterolateral MI
 - Sinus rhythm during hyperkalemia
 - Sinus rhythm during hypercalcemia
 - Sinus rhythm during hypokalemia
 - Sinus rhythm during hypocalcemia
 - Sinus rhythm during hypothermia
 - Sinus rhythm with left ventricular hypertrophy
 - Sinus rhythm with right ventricular hypertrophy
 - Biventricular hypertrophy
 - Sinus rhythm during right atrial hypertrophy
 - Sinus rhythm during left atrial hypertrophy
 - Sinus rhythm during biatrial enlargement
 - Sinoatrial block
 - 1° AV Block
 - 2° AV Block Mobitz I
 - 2° AV Block Mobitz II
-

5 EXERCISE MENU

- 2° AV Block Mobitz II and RBBB
 - 3° AV Block
 - Coronary sinus rhythm
 - Atrioventricular rhythm
 - AV nodal reentrant tachycardia
 - Wandering atrial pacemaker
 - Atrial tachycardia and wandering pacemaker
 - Supraventricular tachycardia
 - Sinus rhythm with LBBB
 - Sinus rhythm with LBBB and MI
 - Sinus rhythm with RBBB
 - Sinus rhythm with incomplete RBBB
 - Idioventricular rhythm
 - Sinus rhythm with WPW syndrome (left lateral)
 - Sinus rhythm with WPW syndrome (right lateral)
 - Sinus rhythm during pericarditis
 - Atrial flutter
 - Atrial fibrillation
-

- Torsades de pointes
- Ventricular flutter
- Ventricular tachycardia
- Ventricular fibrillation
- Asystole
- Ventricular pacemaker
- Atrial pacemaker
- AV sequential pacing

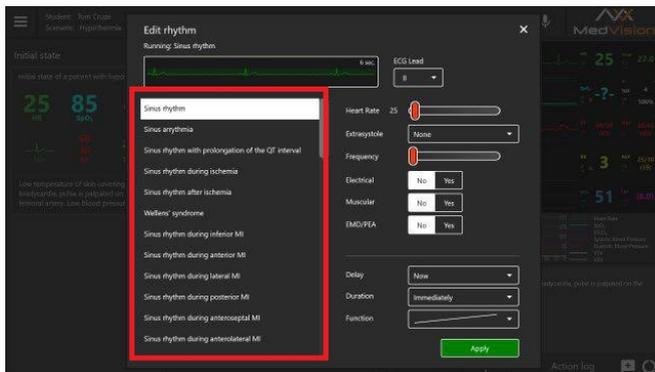


Figure 5.14 List of ECG rhythms available

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To change the current rhythm type, click on the name of the desired rhythm from the list and press **Apply**. There are other parameters for settings on the right side of the menu window (Figure 5.15). In the lower part of the window there are settings allowing changing the current rhythm. In the upper part of the window there are parameters of the selected rhythm type. To change these parameters, select the desired mode or adjust the parameter value using the slider and click on the **Apply** button.

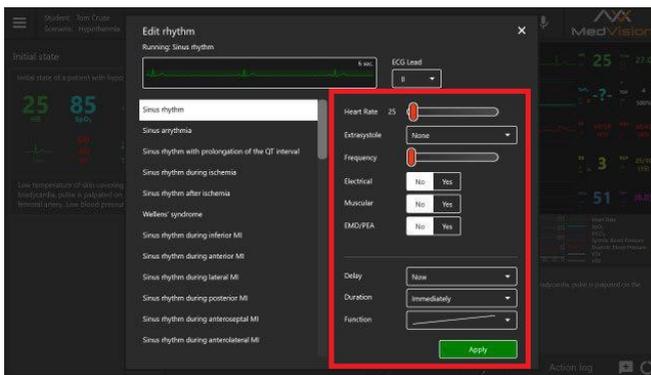


Figure 5.15 Rhythm editing menu. Rhythm type settings

5.6 CPR activation

To initialize the CPR, open the ECG rhythm editing menu window by single-clicking on the ECG graph, select the **Asystole**, **Ventricular Fibrillation** or **Ventricular Tachycardia** (with missing pulse) rhythm

types from the list (Figure 5.15) of rhythm types and press **Apply**. Then proceed to the CPR performance (see CPR data bar and (Figure 5.7)).

5.7 Defibrillation

When running an exercise in the **Manual mode** and **Themes** sections, in the lower right corner, in addition to the **CPR** and **Action Log** tabs, there is a **Cardiac Control** tab, indicated by the icon . Using this tab, you can set the current and expected rhythms. To do this, click on the window with the name of the current/expected rhythm, the rhythm editing menu will open, select the desired rhythm type from the list in the left part of the window and press **Apply**. Below, in the Cardiac Control tab, **the defibrillation parameters** (Figure 5.16) (quantity, energy and current parameters of the defibrillator discharges) are indicated. To adjust these parameters, click on the «-» and «+» icons. If defibrillation is performed correctly, the current rhythm will shift to the rhythm indicated as an expected one.

5 EXERCISE MENU

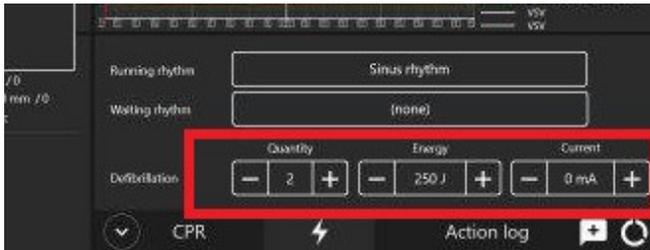


Figure 5.16 Cardiac Control Tab

5.8 List of auscultation sounds

The total list of the **heart sounds** available for selection and setting in the patient menu while running an exercise from the Manual mode and Themes sections and when creating or editing training scenarios:

- Normal heart sound
- Diastolic murmur
- Systolic murmur
- Aortic valve insufficiency
- Aortic valve stenosis
- Aortic valve insufficiency and stenosis
- Mitral valve insufficiency

- Mitral valve stenosis
- Mitral valve prolapse
- Pulmonary valve stenosis
- Tricuspid valve insufficiency
- Coarctation of the aorta
- Hypertrophic cardiomyopathy
- Patent ductus arteriosus
- Atrial septal defect
- Ventricular septal defect
- Pericarditis
- Acute myocardial infarction

The total list of the **lung anterior and posterior sounds** available for selection and setting in the patient menu while running an exercise from the Manual mode and Themes sections and when creating or editing training scenarios:

- Normal breathing
 - Stridor
 - Wheezing
-

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- Coarse crackles
- Fine crackles
- Bronchopneumonia
- Atelectasis
- Bronchitis.

The total list of the **bowel sounds** available for selection and setting in the patient menu while running an exercise from the Manual mode and Themes sections and when creating or editing training scenarios:

- Normal bowel sound
 - Hyperactive sounds
 - Hypoactive sounds
 - Tympanitis
 - Diarrhea
 - Constipation
 - Paralytic ileus
 - Fibrinous peritonitis
 - Renal artery stenosis
 - Abdominal aortic aneurysm.
-

The total list of the **voice sounds** available for selection and setting in the patient menu while running an exercise from the Manual mode and Themes sections and when creating or editing training scenarios: To activate a word or phrase, click on the Patient Words icon and select a word/phrase from the list in the new window. After that, the patient will pronounce the selected word/phrase. In addition, it is possible to use the microphone for the patient to pronounce individual words/phrases.

6 Exercise finish

To complete an exercise, press the Stop button  on the control bar.

After that, the exercise completion menu with the following available functions will open (Figure 6.1):

- **Go to Debriefing** — complete the exercise and go to the exercise debriefing window (see Section Debriefing)
- **Restart** — restart the exercise
- **Finish** — complete the exercise and go back to the main menu.

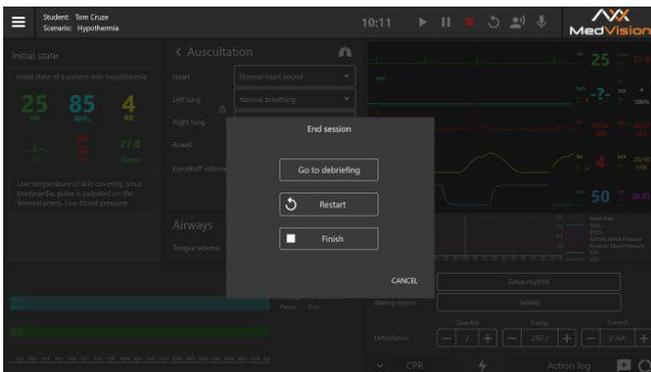


Figure 6.1 Exercise completion menu

7 Students and groups

The **Students** section is divided into two parts: **List of Groups** and **List of Students**.

7.1 Student account creation and settings

In the **List of Students** field you can select, create, edit and delete student accounts.

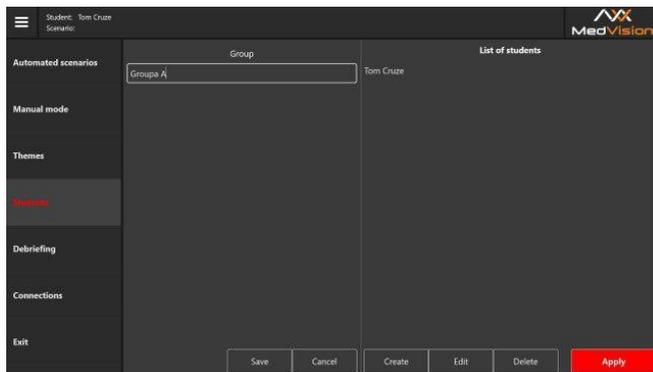


Figure 7.1 Student account settings menu

- To **create** a new student account, press **Create**, enter the first and last names of the student, select the desired group and press **Save**.

7 STUDENTS AND GROUPS

- To **select** a student account, select a group from the list on the left by left-clicking on its name. After that, a list of all students added to this group should appear on the right. Select the desired student from the list and press **Apply**. The name of the selected student will be displayed in the upper left corner in the **Student** field.
- To **edit** the student's account information, select it from the list by clicking on the name of the student and pressing **Edit**. In the new window, change the first and last names of the student; select the desired group and press **Save**.
- To **delete** a student account, select it from the list by clicking on the first and last names, press the **Delete** button and confirm your action.

7.2 Study group creation and settings

In the **List of Groups** field, you can select, create, edit and delete study groups.

- To **create a new group**, press **Create**, enter the name of a new group and press **Save**.
 - To **rename a group**, select it from the list and press **Edit**. In the new window, change the group name, press **Save**.
 - To **delete a group**, select it from the list, press **Delete** and confirm your action.
-

8 Debriefing

You can view the results and details of a completed (or aborted) exercise in the **Debriefing** section.

In the opened menu (Figure 8.1), a list of all completed exercises will be shown. Select the required debriefing file and press **Start** to open the statistics for the selected exercise (debriefing) (Figure 8.2).

Student: Tom Cruise Scenario:		Debriefing Files		
Automated scenarios	Tom Cruise_34827	Student: Tom Cruise Scenario name: Hypothemia Date of the exercise: 22.11.2019 13:30:33 Exercise duration: 10:22	12 K	22.11.2019 13:30:33 Start
Manual mode	Tom Cruise_34825	Student: Tom Cruise Scenario name: Ventricular Tachycardia Date of the exercise: 22.11.2019 13:15:30 Exercise duration: 0:52	8 K	22.11.2019 13:15:30
Themes	Tom Cruise_34824	Student: Tom Cruise Scenario name: Healthy patient Date of the exercise: 08.11.2019 16:57:47 Exercise duration: 2:14	242 K	08.11.2019 16:57:47
Students	Tom Cruise_34823	Student: Tom Cruise Scenario name: Healthy patient Date of the exercise: 07.11.2019 14:37:29 Exercise duration: 2:19	6 K	07.11.2019 14:37:29
Debriefing	Tom Cruise_34822	Student: Tom Cruise Scenario name: Near-drowning Date of the exercise: 31.10.2019 16:22:47 Exercise duration: 5:26	6 K	31.10.2019 16:22:47
Connections	Tom Cruise_34821	Student: Tom Cruise Scenario name: Hypothemia Date of the exercise: 28.10.2019 15:35:50 Exercise duration: 2:37	7 K	28.10.2019 15:35:50
Exit	Tom Cruise_34820	Student: Tom Cruise Scenario name: Healthy patient Date of the exercise: 28.10.2019 15:33:04	4 K	28.10.2019 15:33:04

Figure 8.1 Debriefing menu

8 DEBRIEFING

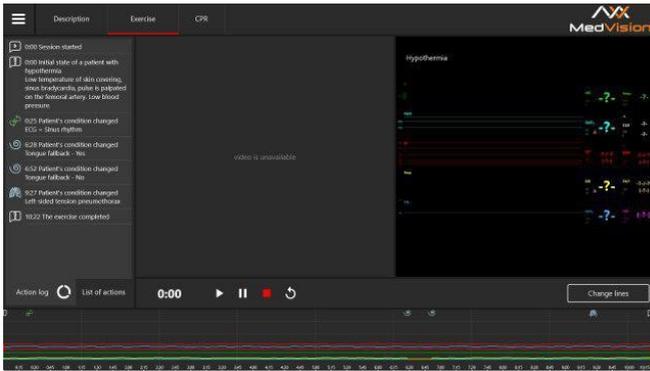


Figure 8.2 Debriefing menu. The Exercise tab

The Debriefing window contains three tabs:

- **Description** (student name, scenario name, date and duration of an exercise)
- **Exercise**
- **CPR**.

8.1 Debriefing menu. The Exercise tab

The **Exercise** (Figure 8.2) tab contains a video of the exercise*. Press **Start** to start playing the video of the exercise and **Pause** — to pause it. To rewind the video of the exercise, left-click on the state prediction graph or the timeline located at the bottom of the screen.

Note: The exercise video will be available only if an external USB video camera has been connected. You can check the camera connection status in the **Connections**.

The **scale of graphs** is implemented in two modes. The first one is the **prediction scale graph**, which shows how the selected indicators of the patient's physiological states changed during the exercise. The second one is the **CPR performance graph**, which displays all completed CPR sessions and their graphical evaluations. To switch between them, use the **Change lines** button (in the lower right corner of the screen). When using the CPR performance graph, you can **zoom the scale out** using the slider next to **Zoom**



8.2 Debriefing menu. The CPR tab

The **CPR** (Figure 8.3) contains detailed statistical information about the performed CPR actions, their quantity and quality. In the left side of the window, there is a field of score, which includes both the total score for the exercise performed and its individual elements.

The tab contains several fields:

- **Overall Score** Consists of scores for good-quality compressions, adequate ventilation and proper-rate defibrillation.
 - **General info** Data on the number of CPR cycles, total operating time and assessment time.
-

8 DEBRIEFING

- **Compressions** Lead to the simulation of circulation, cardiac output, central and peripheral blood pressure and palpable pulse.
- **Ventilation** Statistics on the performed ventilation and its performance quality score (the score is repeated in the Overall Score field).
- **Defibrillation** Statistics on the performed defibrillation and its performance quality score (the score is repeated in the Overall Score field).

Description	Exercise	CPR
General info	General info	Compression
0%	Number of cycles 30/2	Total number of compressions
	Total operating time 10:22	Number of correct compressions
	Assessment time	Number of incorrect compressions
Compression		Correct depth of compressions
0%		Incorrect depth of compressions
Ventilation		Average depth of compressions
0%		Average frequency of compressions
Defibrillation		Correct position of hands
0%		Full release of hands
		Compression score 0%
		Ventilation
		Total number of ventilations
		Number of correct ventilations
		Number of incorrect ventilations
		Average volume
		Average time for 2 ventilations
		Ventilation score 0%
		Defibrillation
		Quantity of bits total
		Quantity of correct bits
		Quantity of wrong bits
		Average energy of shock
		Average time of shock
		Defibrillation score 0%

Figure 8.3 Debriefing menu. The CPR tab

To print the **CPR performance report**, click on the icon  in the upper left corner, select **Print**.

9 Connections

The Connections menu shows all available and active connections of the system components. Active connections are marked green, disabled connections are marked red.

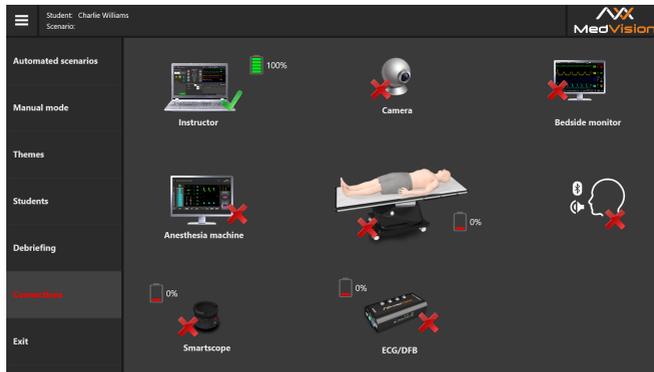


Figure 9.1 The Connections tab in the Instructor Software

10 Malfunctions

PROBLEM	CAUSE	SOLUTION
No positive reaction during mechanical ventilation with BVM	Air leakage during ventilation	Make sure the mask creates a seal on the face of the simulator
The instructor laptop does not connect to the simulator	1. The laptop is not connected to the simulator Wi-Fi 2. The laptop is connected to another Wi-Fi	Go to the list of Wi-Fi networks and select the simulator network
All-in-one PC (bedside monitor imitator) does not connect to the system within 5 minutes	Automated Wi-Fi connection has failed	1. Go to Parameters->Network and Internet and check Wi-Fi connection and IP. To configure IP, go to Network and Sharing Center->Change adapter settings . Find the desired Wi-Fi network in the general list and select «Properties». In the window that opens, select the line IP version 4 (TCP/IPv4) and double-click on it. In the new menu, check the box Get IP address Get IP address 2. Turn off firewall of the all-in-one PC and instructor laptop and restart them

<p>Connection between system elements is lost (all-in-one PC, simulator, smartscope, ECG and DFB adapters) during simulation</p>	<ol style="list-style-type: none"> 1. The simulation equipment was installed in the area not covered by the wireless network provided by the included router. 2. Another software on the user laptop may interfere with the operation of the Instructor software and / or the patient's bedside monitor 3. Interference with other Wi-Fi networks 	<ol style="list-style-type: none"> 1. Place all elements close to each other 2. Stop unnecessary software on the user laptop 3. Disable other Wi-Fi networks
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11 Information to be presented to the Service Centre

In case of any other malfunction, please contact our Service Centre.

Please attach the following information to the letter:

- The simulator full model name and serial number
- Problem description
- Error message screenshot
- Detailed description of the actions leading to the problem
- A **dxdiag.txt** file from the PC where the software error occurred. To create such a file, simultaneously press Windows and R and type «dxdiag» in the pop-up window. After that click on **Save All Information** in the pop-up window

Serial number: _____

Administrator password: _____

Warning: Keep the password in a safe place.

To restore or change the password, request the Service Centre for a new password.

12 Safety precautions

Before starting a session, carefully inspect the simulator and the power cable for tears, cracks, burned or scorched areas, etc. If any damage is found, wait until the failure is fixed.

In case of burning smell, smoke or sparks, immediately stop using the simulator and inform the person responsible for safe operation.

YOU MUST NOT:

- Spill liquids on the simulator or submerge it in water.



Figure 12.1 Keep dry

- Dismantle the simulator.
 - Let the simulator fall, be hit or otherwise damaged.
 - Install the simulator on uneven, inclined, slippery or fragile surfaces.
-

12 SAFETY PRECAUTIONS

- Leave the simulator switched on if unused.

Warning: The environment in the room where the simulator is located must not cause any condensation on electronic and mechanical components of the product.

Make sure simulator cables are not located in the walking area and do not cause any danger when being moved during and after sessions.

13 Cleaning and maintenance

- To clean the simulator body, use light-duty liquid soap or detergent.
- Soak a soft cloth in the selected light-duty liquid soap or detergent and carefully wipe dirt.
- Do not allow liquid leak inside the simulator. Clean the monitor screen as you regularly would.
- Do not forget to perform regular dry and wet cleaning of the facility housing the simulator.
- If heating radiators are on in the facility make sure the simulator's body is not in its proximity.
- If you are not planning to use simulator for some time, turn off its power source.

