A mannequin is lying on its back on a dark, reflective surface. It is wearing grey sweatpants with a small red tag on the left leg. The background is a dimly lit warehouse or industrial facility with shelving units and yellow caution tape on the floor.

# Leonardo HF

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MSE Group

# General info



- Most realistic face
- Realistic weight – 60+ kg
- Realistic joint articulation in all extremities
- Battery life time – 9 hrs
- Wireless/tetherless operation

# Head and airways

- CT scan based airways
- Tracheal and mainstem intubation sensors
- Esophagus intubation sensor
- Jaw trust/release sensor
- Head tilt/chin lift sensor
- Trismus
- Cyanosis (central & peripheral)



# Head and airways

- Airway complications:
  - Tongue edema 0/50/100% (unable to direct laryngoscopy when 100% tongue edema is activated)
  - Pharyngeal obstruction
  - Tongue fallback
  - Laryngospasm



# Controllable eyes

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- Programmable eyelid position
- Reaction to light
- Different pupil size
- Separate control

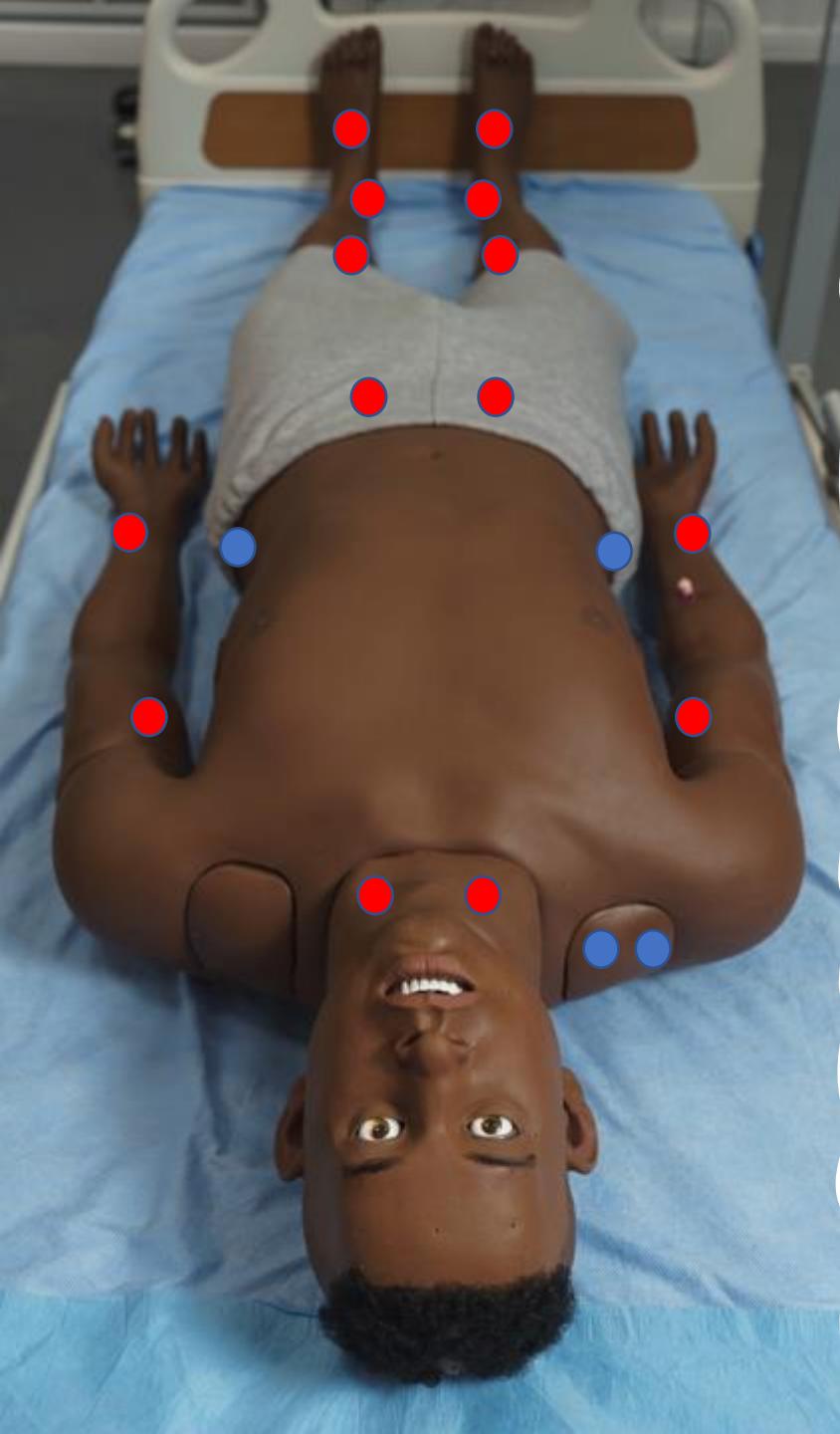


# Secretions

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- Sweat
- Lacrimation
- Nose
- Ears
- Mouth
- Urination (adjustable)





# Circulation

14 pulse points & 4 bleeding ports

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- Carotid bilateral
- Bracheal bilateral
- Radial bilateral
- Femoral bilateral
- Poplitical bilateral
- Posterior tibial bilateral
- Pedal bilateral

# Skin (dragon silicone)

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- Needle decompression of tension pneumothorax (midclavicular) up to 500 times each side
- Chest tube insertion(bilateral, midaxillary)
- Easy to clean skin, perfect for moulage



# Bleeding wounds and amputation kit



# ECG pins and Defib plates

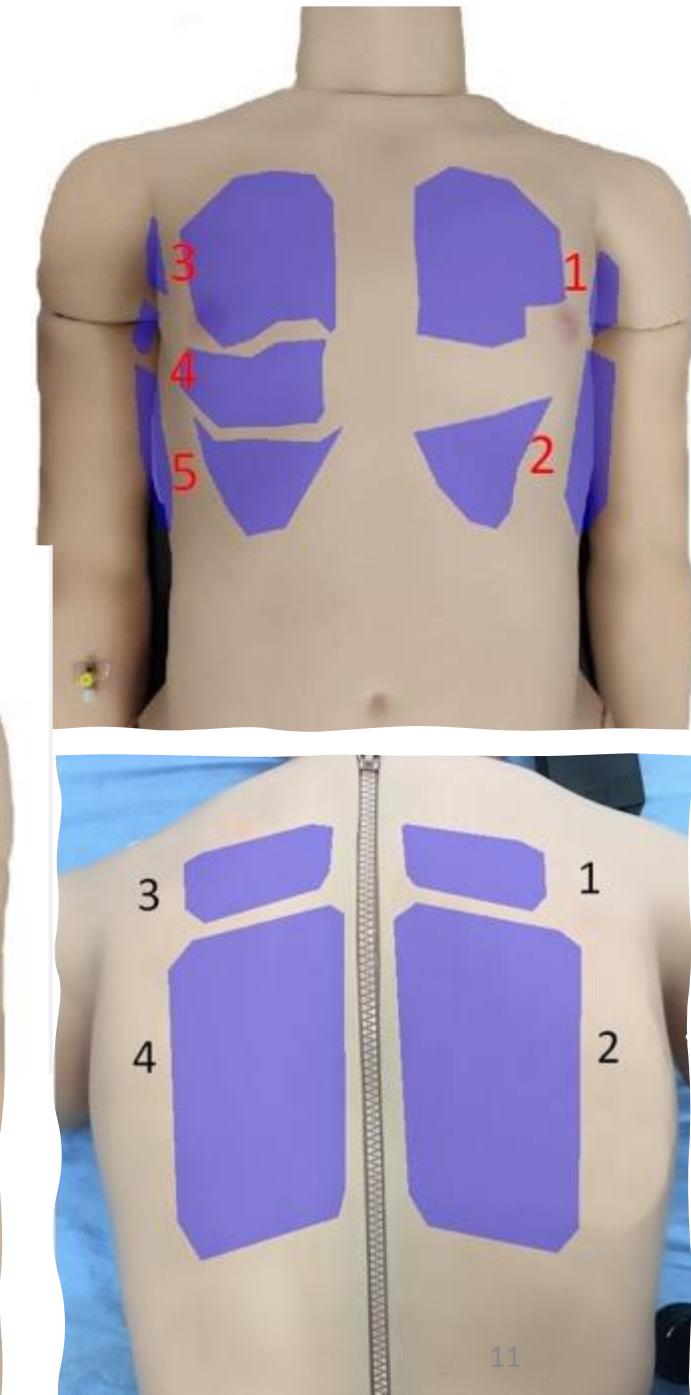
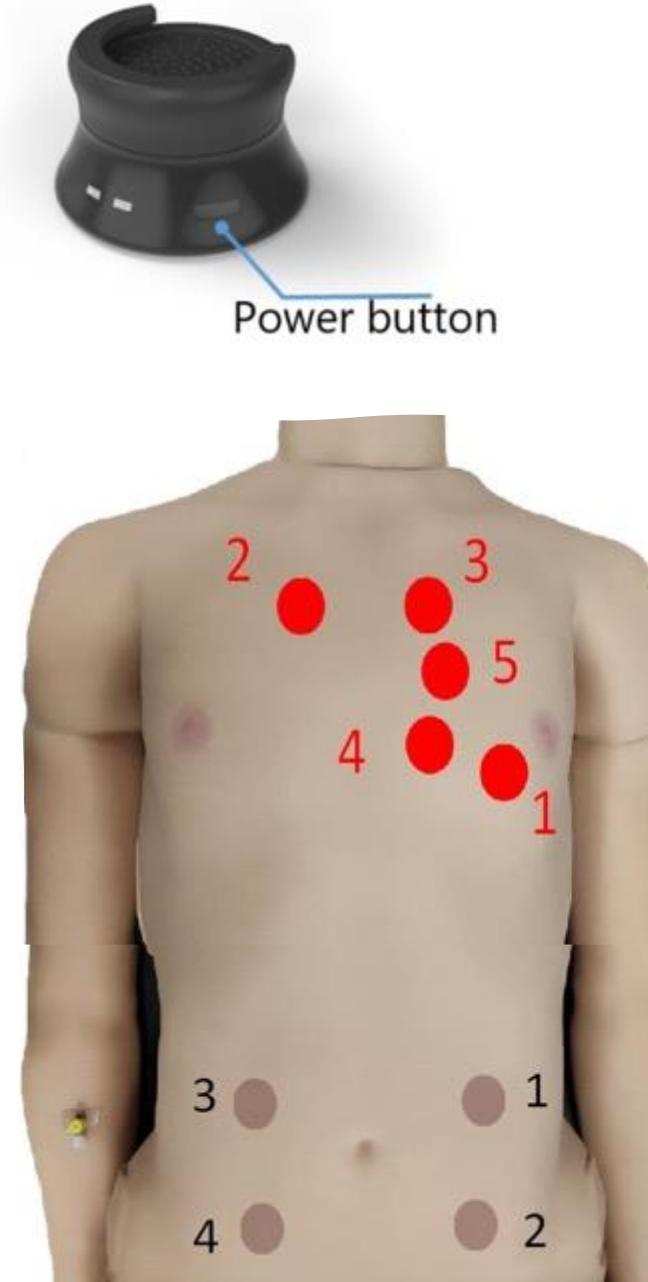
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- Use a real defibrillator with Leonardo HF
- PADS or PADDLES
- Sternum/apex or anterior/posterior electrodes position



# Auscultation via smartscope

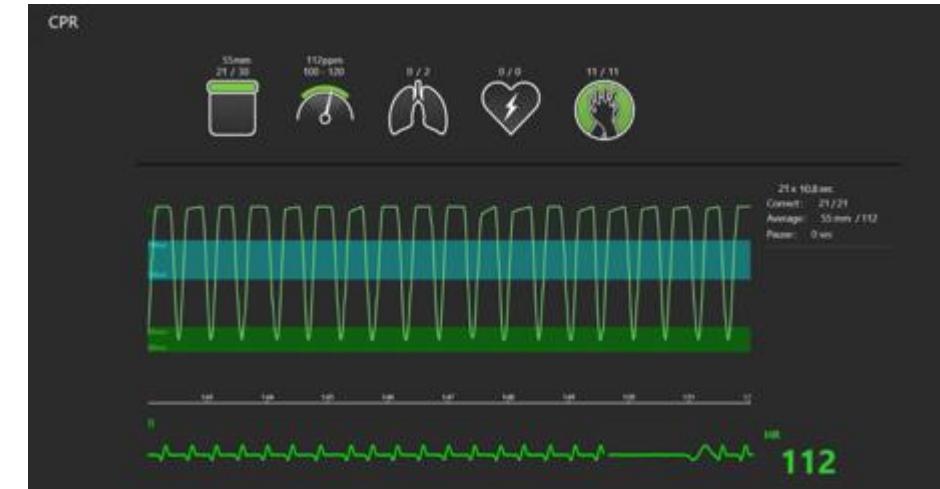
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# CPR feedback

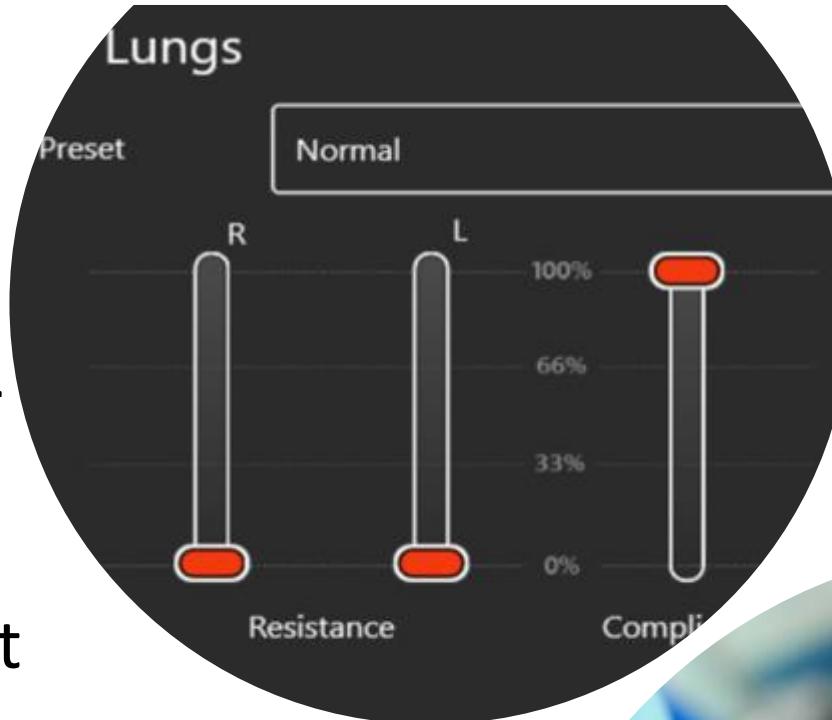
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- ERC guidelines conformity
- Depth, rate and hand position sensors
- Ventilation volume calculation



# Put Leonardo on a real ventilator

Leonardo can be used with your institution's own mechanical ventilators. Our proprietary software makes it possible to set compliance and resistance for a complete clinical case. Pressure / volume control, pressure support, APRV, PAV, HFOV, NIV, PEEP (5-20cm H<sub>2</sub>O).

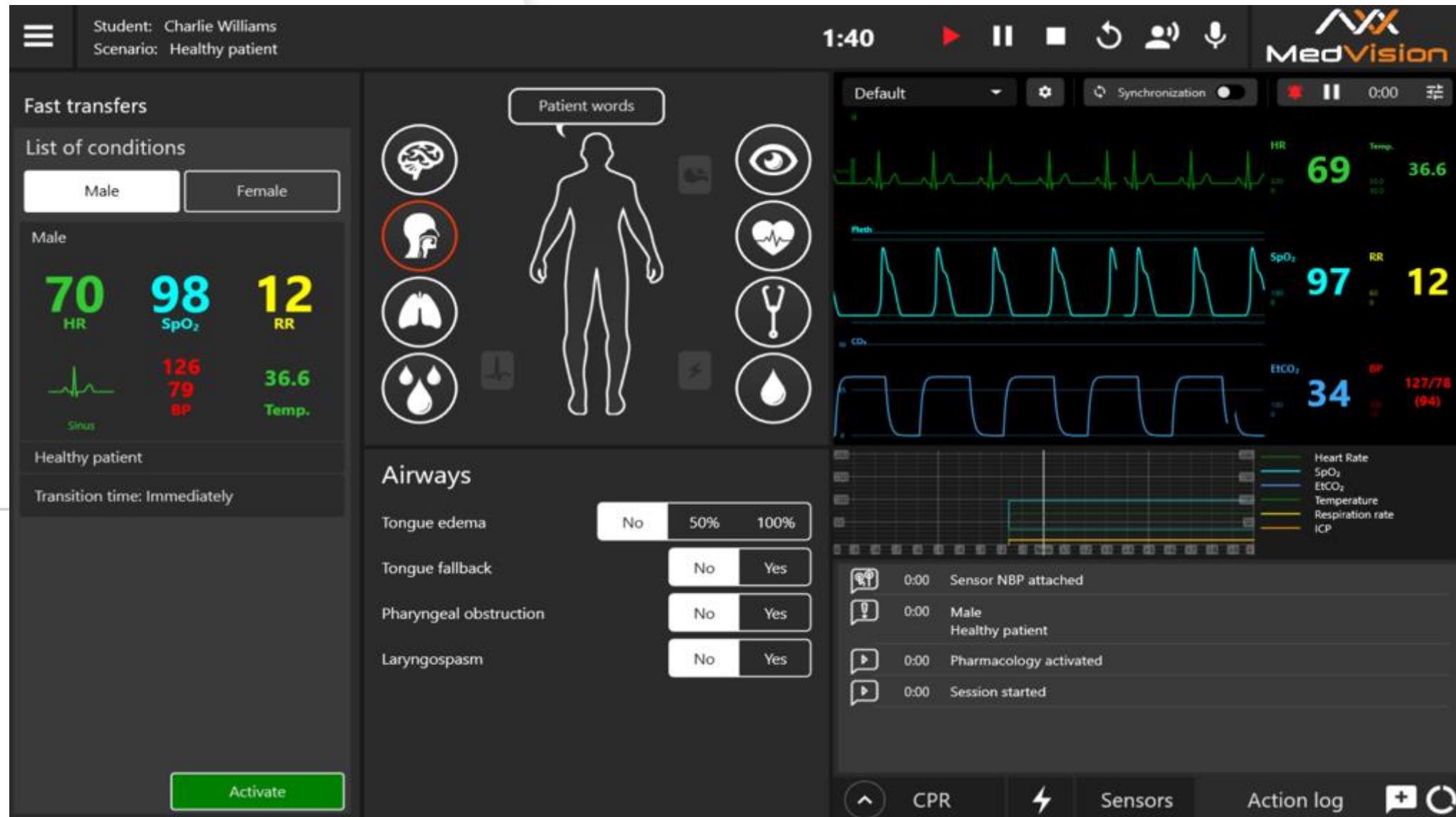


# Vascular access

- IV automatic drug recognition system (water or air)
- IO tibial



# Intuitive software



# Instructor software

Student: Tom Cruze  
Scenario: Heart Rhythm Disturbances

Fast transfers

List of conditions

- Narrow-complex Tachycardia (irregul...)
- Narrow-complex Tachycardia**
- Severe Bradycardia
- Wide-complex Tachycardia

Narrow-complex Tachycardia

**200** HR   **85** SpO<sub>2</sub>   **28** RR  
**80** BP   **36.6** Temp.

Hypotension, heart failure, impaired consciousness.

Transition time: Immediately

Auscultation

- Heart: Mitral valve prolapse
- Left lung: Normal breathing
- Right lung: Normal breathing
- Bowel: Normal bowel sound

Korotkoff volume: 30%

More sounds

Brain

- Trismus: No Yes
- Convulsions: No Yes

Tonic   Clonic

CPR

Activate

7:20

▶ II □ ⏪ ⏩ 🔍

◀ More sounds

Heart: 1 Mitral valve, 2 Aortic valve, 3 Pulmonary valve, 4 Tricuspid valve

Bowel: 5, 6, 7, 8, 9, 10 Lungs anterior: 11, 12, 13, 14 Lungs posterior: 15, 16, 17, 18

Normal heart sound Volume 50%  
Normal heart sound Volume 50%  
Normal heart sound Volume 50%  
Normal heart sound Volume 50%

Activate

All sensors   TOF   Manual mode

SpO<sub>2</sub>   CVP   ICP   AED   NBP   Manual mode

EtCO<sub>2</sub>   BP   ECG

PAP

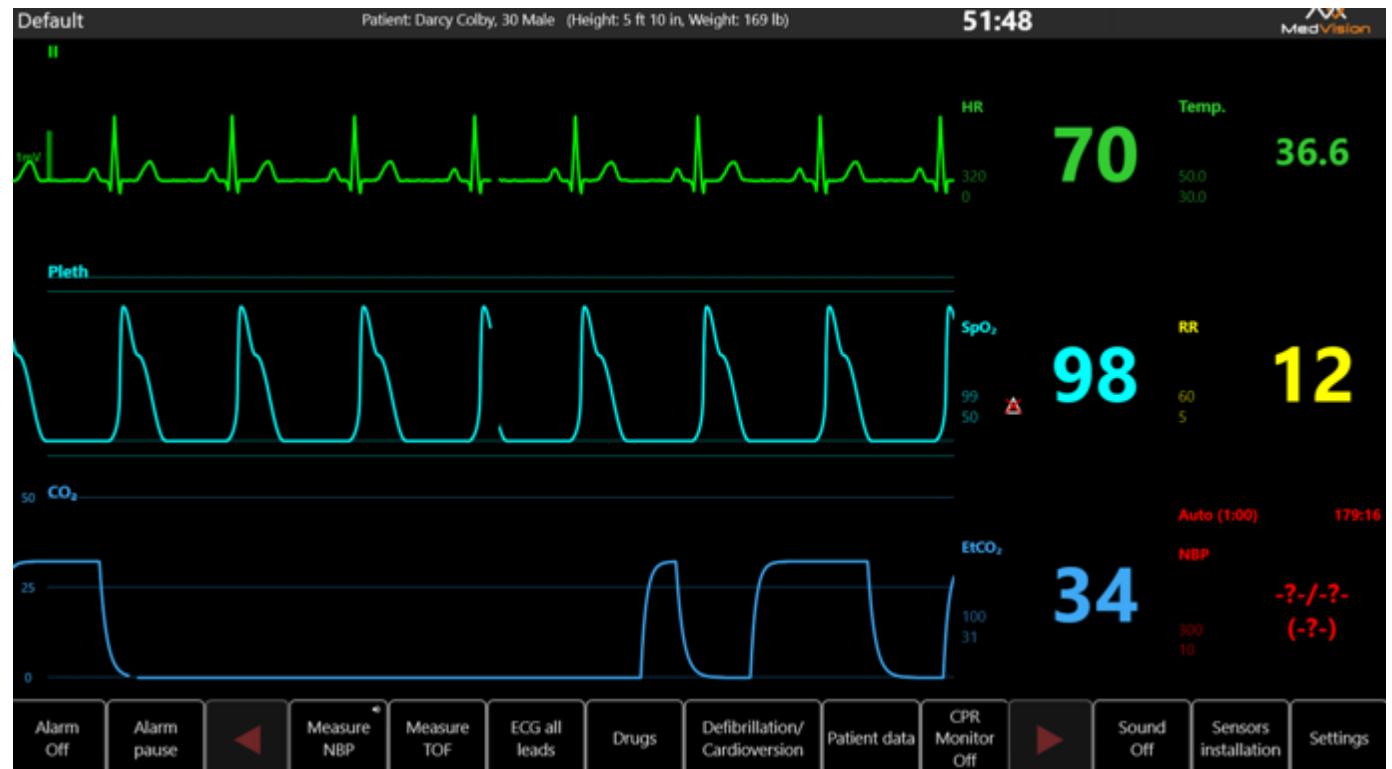
Connect when starting an exercise

Connect when starting an exercise

CPR   Sensors   Action log 16

+

# Patient monitor software



Drugs

Groups: Antiarrhythmic

Drugs: Lidocaine

Routes: Intravenous injection

Concentration: 10 mg/ml

Lidocaine: 10 ml  
100.00 mg

1 2 3  
4 5 6  
7 8 9  
0 .

Enter

Defibrillator

Energy: 150 J

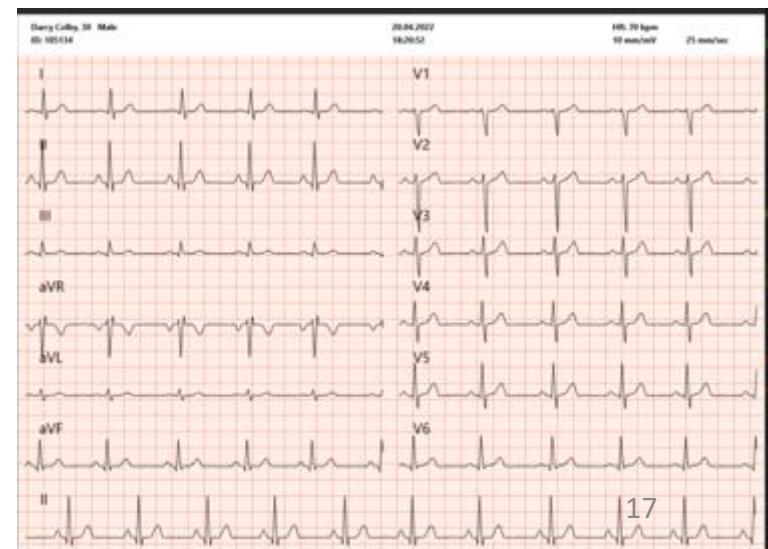
CHARGE ⚡

Pacemaker

Current: 30 mA

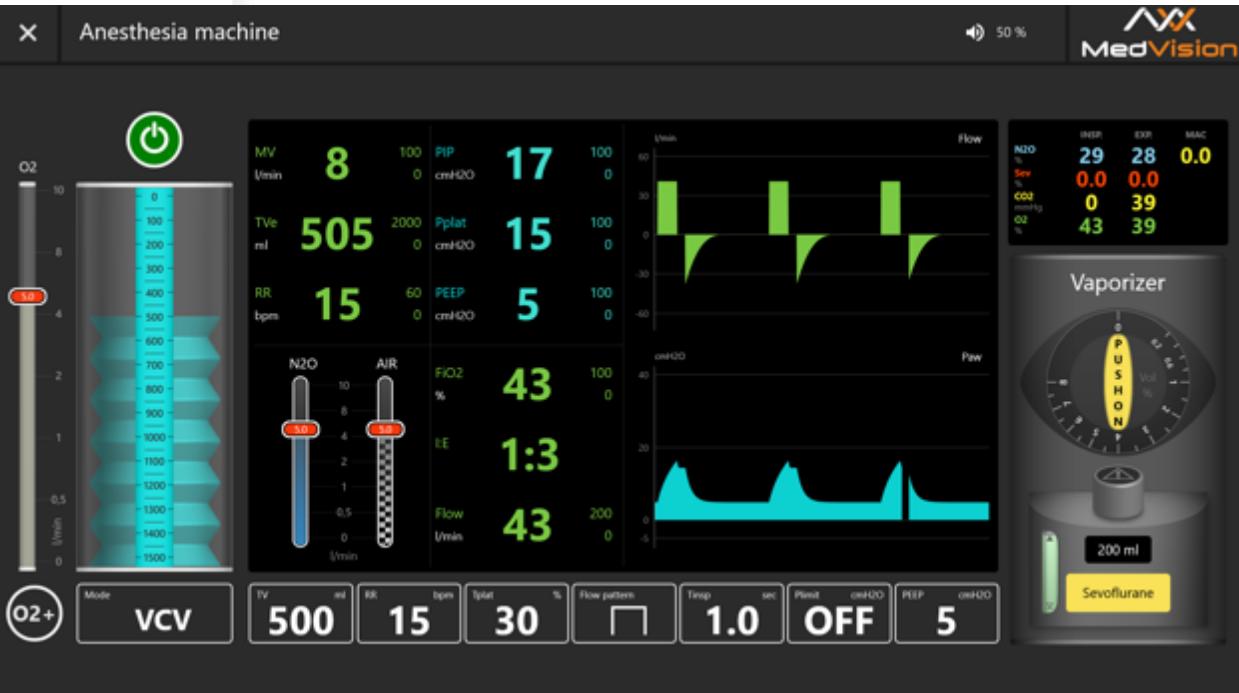
Rate: 60

⚡

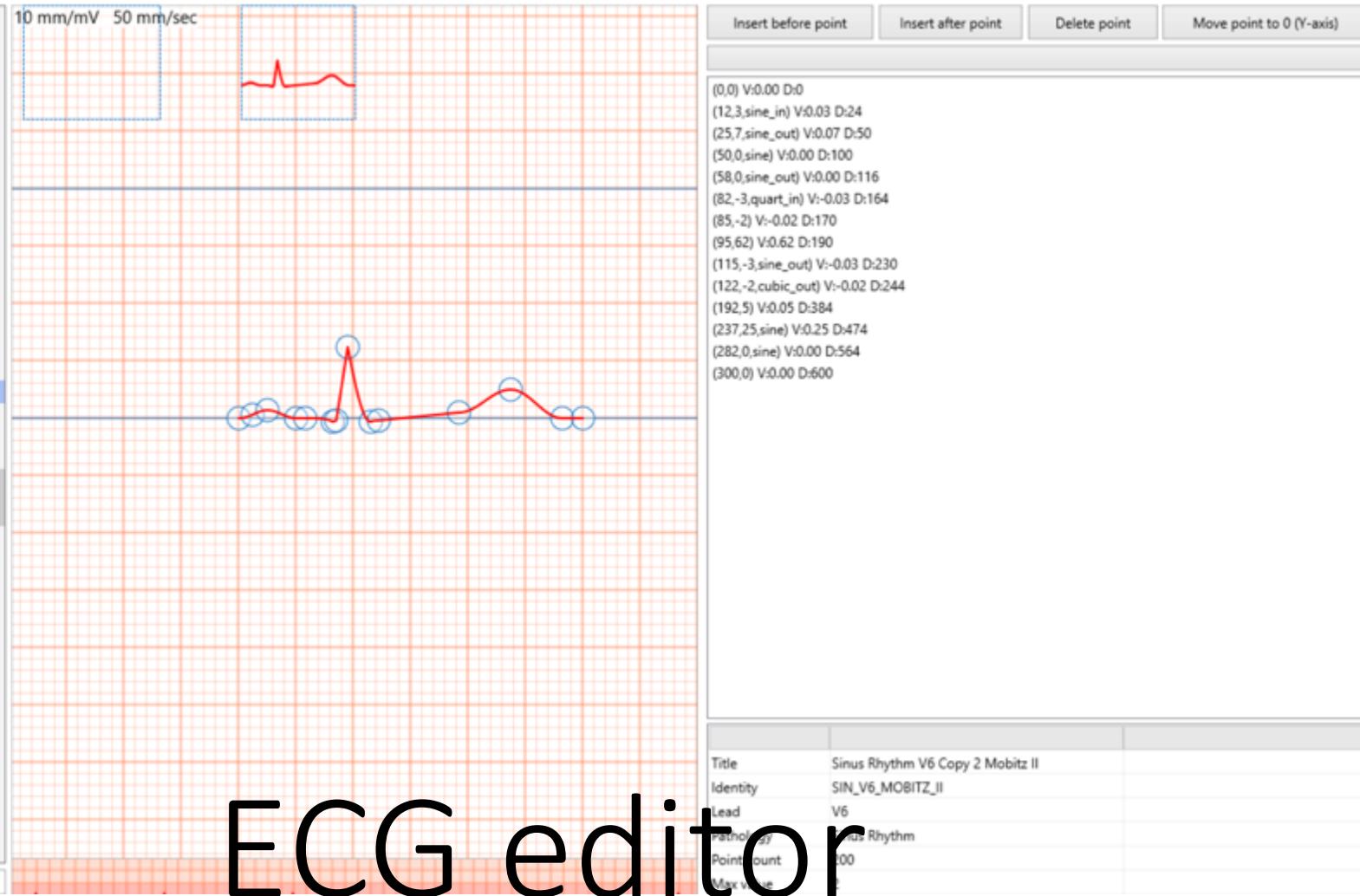




# Virtual anaesthesia machine



- Sinus Rhythm V3 ES1
- Sinus Rhythm V4 ES2
- Sinus Rhythm V4 ES2
- Sinus Rhythm V4 ES1
- Sinus Rhythm V4 ES0
- Sinus Rhythm V4 ES1
- Sinus Rhythm V4 ES2
- Sinus Rhythm V5 ES0
- Sinus Rhythm V5 ES1
- Sinus Rhythm V5 ES1
- Sinus Rhythm V6
- Sinus Rhythm V6 ES1
- Atrial tachycardia and wandering pacemaker V6\_4
- Sinus Rhythm V6 Copy 2 Mobitz II**
- Sinus Rhythm V6 Copy 2 Wandpacemaker
- Sinus rhythm after ischemia III ES1
- Sinus rhythm after ischemia III ES1
- Sinus rhythm after ischemia III ES0
- Sinus rhythm after ischemia III ES1
- Sinus rhythm after ischemia III ES1
- Sinus rhythm after ischemia III ES2
- Sinus rhythm after ischemia aVR ES1
- Sinus rhythm after ischemia aVR ES0
- Sinus rhythm after ischemia aVR ES1
- Sinus rhythm after ischemia aVL ES1
- Sinus rhythm after ischemia aVL ES1
- Sinus rhythm after ischemia aVL ES0
- Sinus rhythm after ischemia aVL ES2
- Sinus rhythm after ischemia aVL ES2



# ECG editor



# Scenario editor

The screenshot shows the MedVision scenario editor interface. At the top, there is a navigation bar with buttons for New, Open, Save, Save As, Actions, Scenario info, Units of measurement, Configuration, and a logo for 'MedVision'.

The main area displays a flowchart for managing anaphylaxis. It starts with a 'Normal condition' state (Scenario 2) at the top right, which has a heart rate of 115, blood pressure of 24/95, oxygen saturation of 95, and temperature of 36.6. A dashed arrow points from this state to a 'Treatment' box. This treatment involves removing the cause of allergic response and giving epinephrine (intravenous injection) at a volume of 1±0.5 ml. From this treatment step, a solid arrow leads to a '00:15' time marker, which then connects to a 'Stopping of blood circulation' state (Scenario 1a). This state shows a heart rate of 0, blood pressure of 0/0, oxygen saturation of 0, and temperature of 36.6. It includes steps for CPR and oxygenation. A dashed arrow from this state leads to another '00:15' time marker, which connects to a 'Ventricular fibrillation' state (Scenario 1b). This state also shows a heart rate of 0, blood pressure of 0/0, oxygen saturation of 0, and temperature of 36.6. It includes steps for defibrillation and warning assistants about a security threat. A dashed arrow from this state leads to a '05:00' time marker, which then connects to a final state: 'Death of a patient' (Scenario 1aa). This state shows a heart rate of 0, blood pressure of 0/0, oxygen saturation of 0, and temperature of 36.6. It indicates that the patient has stopped breathing.

On the right side of the screen, there is a sidebar with the following information:

- Scenario name:** Anaphylaxis
- Group name:** Standard clinical scen.
- Scenario description:** Anaphylaxis is an acute life-threatening immunoglobulin E (IgE)-mediated hypersensitivity reaction. Release of histamine and other agents during anaphylaxis causes: capillary leak, wheezing, urticaria, edema, diarrhea.
- Patient data:**
  - Name: Sophie Wilson
  - Age: 35
  - Gender: Female
  - Weight: 65,0 kg
  - Height: 169 cm
- Case history:** A 35-years-old woman had her tooth removed in the dental room. After local anesthesia with novocaine, the patient felt sick. She complained of dizziness. Her skin was pale. A few minutes later the patient lost consciousness.
- Learning objectives:** Teach student to treat a patient with anaphylaxis.
  - 1) To determine the symptoms of anaphylaxis.
  - 2) To understand how to differentiate this condition from...
- Additional data:**
- General information:**

At the bottom of the interface, there is a red button labeled 'Add new state'.





Meet new  
Arthur!

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