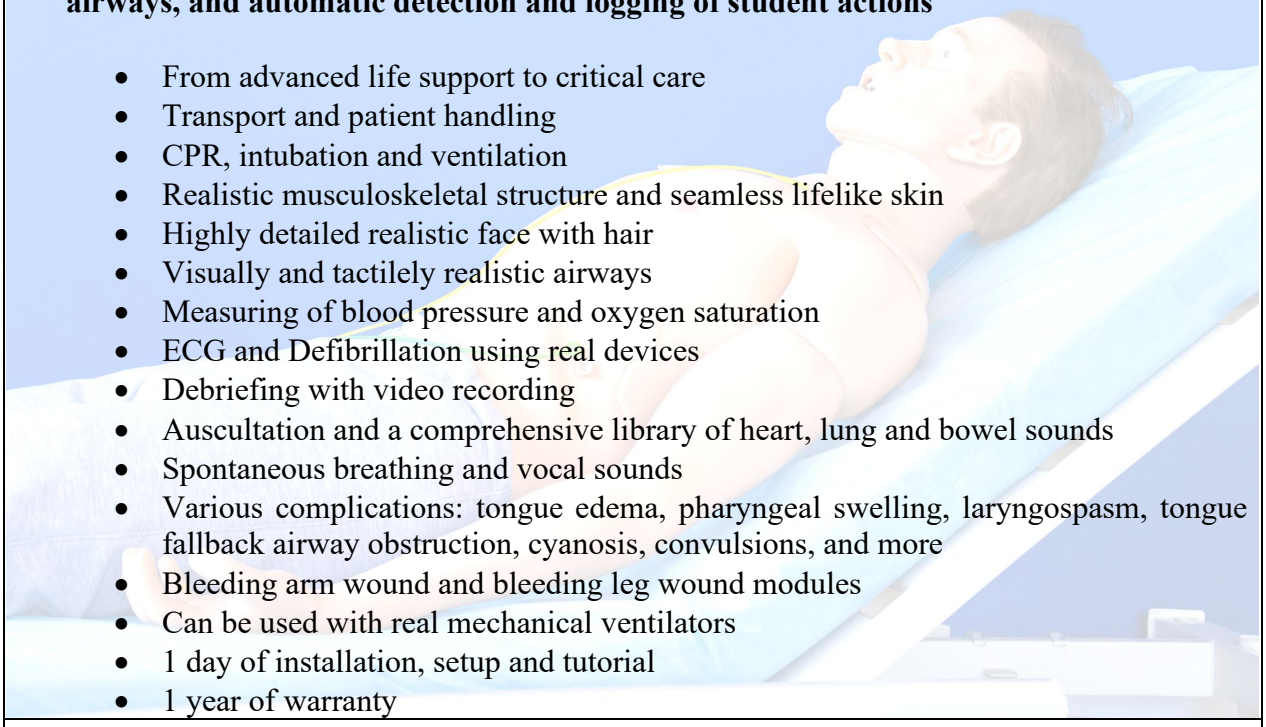
MedVision Leonardo Adult Patient Simulator



A completely wireless adult patient simulator designed for a wide variety of clinical training scenarios, with the ability to mimic bodily functions realistically, a lifelike aspect and tactile feel, natural full articulation, anatomically correct landmarks and airways, and automatic detection and logging of student actions

- From advanced life support to critical care
- Transport and patient handling
- CPR, intubation and ventilation
- Realistic musculoskeletal structure and seamless lifelike skin
- Highly detailed realistic face with hair
- Visually and tactilely realistic airways
- Measuring of blood pressure and oxygen saturation
- ECG and Defibrillation using real devices
- Debriefing with video recording
- Auscultation and a comprehensive library of heart, lung and bowel sounds
- Spontaneous breathing and vocal sounds
- Various complications: tongue edema, pharyngeal swelling, laryngospasm, tongue fallback airway obstruction, cyanosis, convulsions, and more
- Bleeding arm wound and bleeding leg wound modules
- Can be used with real mechanical ventilators
- 1 day of installation, setup and tutorial
- 1 year of warranty

Key features
A wide variety of clinical training scenarios
Various pre-installed themed medical training scenarios and patient conditions
Autonomous power supply (battery)
Battery life in continuous operation: 8 hours
Wired charging from a 110-220V power outlet
Interface in English
Simulator is a life-size model of an adult
Height of 6’
Weight of 160 lbs
Realistic weight of limbs and head
Highly realistic head with detailed facial features such as blemishes, wrinkles, pores and hair on scalp and eyebrows
Proprietary silicone skin has realistic appearance and is tactilely lifelike with a natural texture, suppleness and elasticity
Simulator silicone skin is easy to clean and will not stain from moulage, makeup or washable markers
Simulator skin covers entire body, including articulations
Patient simulator has a realistic imitated musculoskeletal structure and has the following anatomical landmarks: • Finger bones, wrists, ancles and elbows • Ulna, radius and tibia

• Palpable ribs • Palpable shoulder blades • Kneecaps mobility • Palpable pelvic bones • Palpable muscle on arms, legs and torso
Natural full articulation of neck, limbs and lumbar
Neck mobility (in degrees): • Left and right tilt: ± 45˚ • Forward tilt: + 20˚ • Backwards tilt: - 45˚ • Head rotation left and right: ± 45˚
Bendable lumbar region
Mobility in all joints (in degrees): • Shoulders X: 0….+180˚ • Shoulders Y: 0….-100˚ • Elbow: X: 0….+110˚ • Wrist: X: +45….+80˚ • Forearm rotation: 0….+180˚ • Knees: 0….-90˚ • Ankle joint: ±15˚ • Hip joint: 0….+90˚»
Male and Female interchangeable genitalia
Catheterization procedure (automatically logged into software) and urination (variable strength)
Programmable blinking rate and eyelid position (bilateral or unilateral)
Pupillary light response is automatic (pupillary reflex can be disabled to mimic trauma)
Programmable dilation and constriction of pupils (bilateral or unilateral)
Programmable tonic and clonic convulsions
Head tilt tracking (action automatically logged into software)
Chin lift tracking (action automatically logged into software)
Jaw thrust tracking (action automatically logged into software)
Oculocardiac reflex (action automatically logged into software)
Sounds
Auscultation areas: 21
Anterior lung auscultation: 5 areas
Posterior lung auscultation: 6 areas
Heart auscultation sites: 5 points (aortic, pulmonic, Erb's point, tricuspid and mitral)
Bowel auscultation: 4 areas
Korotkoff sounds auscultation: 1 point
Auscultation of normal and abnormal lung sounds: bronchovesicular respiration, vesicular respiration, diminished vesicular respiration, coarse crackles, fine crackles, wheezes, rhonchi, gurgling rhonchi, stridor, pleural friction rub, amphoric respiration, harsh respiration, asthma, covid-19, right sided pneumothorax, left sided pneumothorax, pneumonia, atelectasis, chronic bronchitis, pulmonary edema, emphysema.

Auscultation of normal and abnormal heart sounds: Functional murmur, diastolic murmur, opening snap, holosystolic murmur, early systolic murmur, continuous murmur, Austin Flint murmur, pericardial rub, Graham Steell murmur, aortic valve regurgitation, aortic valve stenosis, aortic stenosis and regurgitation, congenital aortic stenosis, mitral valve regurgitation, mitral valve stenosis, mitral valve prolapse, mitral stenosis and regurgitation, pulmonary valve stenosis, pulmonary valve regurgitation, tricuspid valve regurgitation, coarctation of the aorta, hypertrophic cardiomyopathy, patent ductus arteriosus, atrial septal defect, acute myocardial infarction, congestive heart failure, systemic hypertension, acute pericarditis, dilated cardiomyopathy, pulmonary hypertension, tetralogy of Fallot, ventricular aneurysm, Ebstein's anomaly.
Auscultation of normal and abnormal bowel sounds: Normal bowel sound, hyperactive sounds, hypoactive sounds, borborygmus, capotement, peritoneal friction rub, normal bowel sound with bruits, irritable bowel syndrome, diarrhea, bruits due to renal artery stenosis, constipation, ulcerative colitis, Crohn's disease, paralytic ileus.
Vocal sounds: pre-recorded words, phrases, coughs, screaming, moans, vomiting, difficulty breathing, and other sounds
Bluescope stethoscope adapter for clean and clear auscultation sounds
Use of a built-in microphone for wireless communication or patient speech
Cardiovascular system
Pulse palpation: 14 points Pulse points: carotid bilateral, brachial bilateral, radial bilateral, femoral bilateral, popliteal bilateral, dorsalis pedis bilateral, posterior tibial bilateral
Pulse is activated when palpated
Each pulse palpation is automatically logged into software (action log)
Configurable pulse strength
Defibrillation using real defibrillators (procedure details logged in software)
Realistic physiological reaction when defibrillated (patient jolts)
Defibrillator discharge is registered in the activity log (logged in software)
ECG electrodes correct positioning tracking (logged in software)
Efficient chest compressions lead to mimicked blood circulation, cardiac output, central and peripheral blood pressure and palpable pulse
Cyanosis visible on hands and nasolabial triangle
Injections
IV access port, pre-installed catheter on arm
IV administration with fluid or air (wet or dry)
Automatic drug recognition for IV injections (logged in software)
Automatic dose and injection speed recognition for IV injections (logged in software)
Virtual medications: comprehensive library of medications with feedback-based pharmacokinetic response
Medicine kit with syringes, drugs represented in RFID tags that attach to syringes, RFID writer (customizable)
IO tibial site
IO humeral head site
IO administration with fluid or air (wet or dry) on humeral head site

Secretions
Forehead perspiration (diaphoresis)
Lacrimation
Ear secretions
Nasal secretions
Oral secretions
Urination and catheter urination (action logged in software)
Bleeding arm wound (attachable module)
Bleeding leg wound (attachable module)
Tourniquet application on arm and leg to stop bleeding (action logged in software)
Respiratory system, airway, thorax
Mechanical ventilator compatible (max tidal volume 800ml)
Right and left lungs are fully independent
Airway (mouth, oropharynx, larynx, trachea) and esophagus are based on a real patient data and anatomically correct, with lifelike tactile feel and aspect for true-to-life intubation experience
During spontaneous ventilation the patient simulator is breathing with automatically controlled respiratory volume and respiratory rate, keeping eucapnia and normal oxygen saturation
Laryngospasm - visually lifelike and programmable
Pharyngeal edema - visually lifelike and programmable
Tongue edema - visually lifelike and programmable (0%/50%/100%)
Trismus (lockjaw) – visually lifelike and programmable
Simulated tongue fallback airway obstruction (breathing resumes with correct head positioning)
Tension pneumothorax (left side or right side)
When unilateral pneumothorax is active, chest excursions are accordingly unilateral, auscultation sounds are accordingly unilateral
Needle decompression with audible air escape (left side or right side)
Pleural cavity for chest tube insertion (bilateral)
Chest compression
Independent left/right airway obstruction
Nasal intubation
Airway intubation with an 8 mm tube (action logged in software)
Endobronchial right and left lung intubation (action logged in software)
Esophageal intubation with stomach distension (action logged in software)
Laryngeal mask placement
Cricothyrotomy and tracheostomy
Consumable materials for performing cricothyrotomy and tracheostomy: neck skin, cricoid cartilage
Different cricoid cartilage types: more prominent/less prominent
Chest excursion when ventilated with a BVM, even when the simulator is off
Software suite includes: • Instructor software

• Bedside Monitor software • Scenario Constructor software • ECG Editor software • Debriefing software
Instructor software Allows working with pre-constructed scenarios: automatic, manual or themes; monitoring scenario progress and performance assessment; introducing various medical complications; provides detailed debriefing reports after every scenario
Modular software structure with various add-ons
Activity log for all performed actions
Automatic scenario mode (a triggering action changes patient condition)
Manual scenario mode (patient condition and vital signs are changed manually)
Themes scenario mode (manually shift from one condition or state to another)
Pre-installed themes
Pre-installed simulated conditions
Patient's current physiological parameters monitoring and control block
Patient's bedside monitor control block
Activity log for all actions performed during the session
Trends display block, with forecasting graphs of how the scenario will develop
CPR assessment monitoring, configuring and activating block
Built-in debriefing system with video recording
The debriefing system allows viewing a completed exercise video
Detailed CPR statistic report
CPR assessment parameters (logged in software)
Chest compression depth (logged in software)
Chest compression rate (logged in software)
Chest compression pause length (logged in software)
Time of compressions (logged in software)
Ventilation rate (logged in software)
Ventilation volume (logged in software)
Excessive ventilation (logged in software)
Saving CPR performance report to a separate file

Current connection status diagram displaying block
Simulator battery charge indicator
Multi-language interface
User database: track, create new users, edit and delete users
Create, edit and delete user groups
Bedside Monitor software Installed on a separate all-in-one PC – imitates a real patient monitor. Displays patient's vital signs, blood pressure monitoring, display of all ECG leads, drugs administration, virtual defibrillation, CPR monitoring. Also allows viewing additional information about the patient (MRI, CT scans, medical history)
Vital signs monitoring on both the bedside monitor and on the instructor's laptop
Monitoring parameters presetting (anesthesiology, resuscitation, transportation, cardiology)
Simultaneous waves display (3 to 7 graphs)
Alarm system with the ability to mute or pause the alarm for 1 min
Large digits for HR, RR, SpO2, BP, EtCO2
Pulse oximeter for measuring SpO2
Monitoring channels:
– 12 ECG leads: I, II, III, aVL, aVR, aVF, V1, V2, V3, V4, V5, V6
– Respiratory rate (RR)
– Systolic blood pressure (SysBP)
– Diastolic blood pressure (DiaBP)
– Respiratory frequency (fR)
– Respiratory curve (Resp)
– Blood oxygen saturation (SpO2)
– Body temperature
– Non-invasive blood pressure (NIBP)
– End-tidal CO2 (EtCO2)
– Central venous pressure (CVP)
– Pulmonary artery pressure (PAP)
Panel of additional functions: blood pressure monitoring, TOF monitoring, display of all ECG leads, drugs administration, defibrillation, patient's data, CPR monitor display
Scenario Constructor software Allows creation of various clinical scenarios, formation of action checklist, setting shifts and triggers between conditions using a database of events and actions, saving the script and using it with the simulator
Allows creation of various proprietary training scenarios
Unlimited number of states
Scenario constructor is designed as a canvas for easy visualization and scenario construction
Patient's physiological condition parameters settings block
Number of displayed physiological parameters: 15 parameters

Shifts and triggers settings block (with a database of possible actions and medication)
Listing of actions and triggers required for state shift
Saving patient's condition as a separate file
Saving a scenario as a separate file
ECG Editor software Allows constructing ECG graphs with their further integration into the database for use in scenarios
Designed as a canvas for easy visualization and graph construction
ECG graphs pointwise construction for a certain lead
Change of the interpolation between the listed points (linear, sine-wave, cubical, etc.)
Saving, editing, deleting, renaming the ECG graphs for a certain lead
Impulse duration setting
Real ECG representation as the graphic canvas background
Received ECG curve viewing window
Debriefing software Allows viewing the results of the exercises, discussion and analysis of the results obtained
Exporting any report of a completed session
Window displaying video with controls (start, stop, repeat)
Bedside monitor parameters window
Window displaying dynamic changes of parameters as graphs
Window displaying CPR parameters as a graph
Detailed CPR assessment window
CPR assessment printing
Package contents:
Adult patient simulator: 1 unit
Simulator battery charger: 1 unit
Patient clothing (shorts)
Drug injection syringe imitators: 5 syringes
Holder for syringes and medication RFID tags: 1 unit
Bluescope stethoscope adapter: 1 unit
Bluescope stethoscope adapter charger: 1 piece
Lubricant spray (for intubation)
Blood Pressure Cuff: 1 unit
Replaceable IV catheters: 5 pieces
IO bone consumable replacement key: 1 unit
IO tibia bone consumable: 10 pieces
IO skin cover band: 2 extra pieces
Key for replacing genitals: 1 piece
IO humeral head consumables: 5 extra pieces

Plugs for the urination port: 2 pieces
Pulse oximeter: 1 unit
Neck skin: 2 extra pieces
Chest tube insertion consumables : 6 extra pieces (3L/3R)
Cricothyrotomy consumables set: 2 sets
Prominent cricoid (preinstalled): 1 piece
Non-prominent cricoid: 1 piece
Refill bottles: 1 set
Refill bottles holder: 1 piece
Leg wound module (capable of bleeding): 1 unit
Arm wound module (capable of bleeding): 1 unit
Wi-Fi router: 1 unit
PC instructor: 1 unit
PC patient monitor: 1 unit
Instructor software: 1 license
Scenario Constructor software: 1 license
Bedside Monitor software: 1 license
ECG Editor software: 1 license
Debriefing software: 1 license

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