



MEDICAL-X
ADVANCING SIMULATION



NENASim

Xtreme

Simulator for neonatal training

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Actual product may vary due to to product enhancement.



NENASIM
Handle with care
MEDICAL-X

The world's
most realistic,
advanced and
customizable
neonatal patient
simulator.



“The closest you can get to training with a real baby.” -

Prof. Dr. Irwin K.M. Reiss, Erasmus MC, University Medical Center Rotterdam.





When every lesson is a lifesaver

From first responders arriving on the scene of a traffic collision, to ER staff required to make quick and accurate pediatric patient assessments, there can be no cutting corners when it comes to training medical professionals. The time spent practising and training for these difficult situations allows first responders and caregivers to be ready when it really matters.

But how can trainers replicate the pressurized, high-stakes environments that doctors, nurses, fire fighters, paramedics and the military face on a daily basis? How can they transfer the technical skills from the textbook and the classroom and into real-life scenarios without any harm or injury to actual patients?

Realistic, scenario-based training can bridge the gap between theory and practice. By using simulation tools that are absolutely realistic in form and function, trainers can deliver the appropriate reinforcements of skills and knowledge.

That's why the **NENASim Xtreme** has been designed from the ground up to provide the world's most realistic infant patient simulator for the state-of-the-art training of real-world medical scenarios.

From its lifelike eyes and palpable fontanelles to the realistic silicone skin that colorizes to simulate conditions like **cyanosis, jaundice, paleness, and redness**, the **NENASim Xtreme** looks, feels, weighs and sounds like a real baby.





But the realistic design isn't only skin-deep. Internally, **NENASim** has anatomically-faithful features. Users can recognize, move and treat the ribs, collar bones, arm bones and leg bones. **NENASim Xtreme** reacts with realistic laughter, crying, hiccups, coughing, and grunting sounds. Its breathing rates and depths alter. Its vital statistics respond as complications occur. **It's just like treating a real baby.**

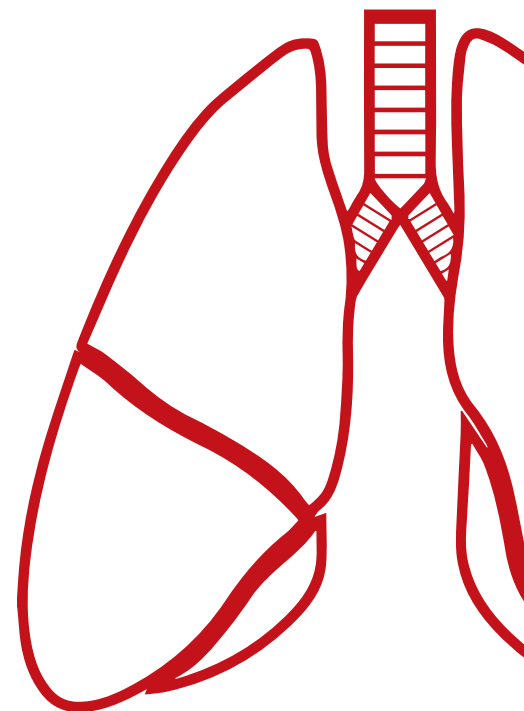




Each breath counts

Help healthcare practitioners to make the leap from abstract, in-class theory to high-stakes, on-the-ground application with the extraordinarily realistic **NENASim Xtreme** pediatric simulator.

- Realistic oropharyngeal and nasopharyngeal airways
- Tongue, vocal cords, trachea, and esophagus
- Jaw-thrust maneuver
- Realistic lung functions
- Laughing, crying, hiccups and coughing sounds



Few situations cause disability and death more rapidly than compromised airway and breathing, which makes **airway management** one of the most critical, demanding, and complex aspects of pediatric care.

Learning to apply the principles behind pediatric patient assessment when the pressure is on and the patient reacts abnormally requires hands-on skill station coaching and interactive simulation coaching for training and perfecting a broad range of procedures and treatments.

The Pediatric Assessment Triangle (PAT) teaches professionals to assess a baby's appearance, breathing and circulation to the skin in order to determine how to effectively treat the infant.



NENASim during inspiration



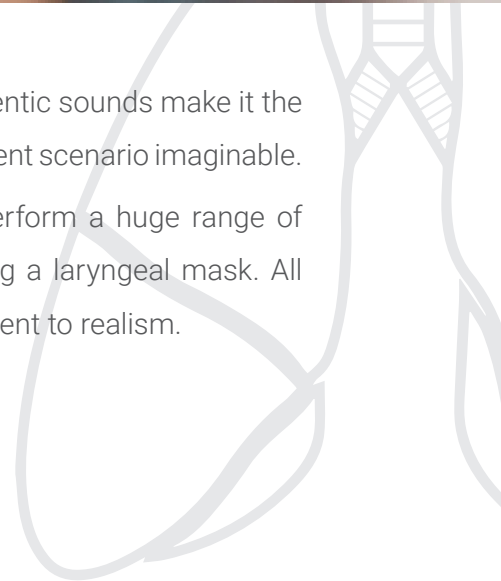
NENASim during expiration



Resuscitative procedure with software

NENASim Xtreme's realistic airway, colorizing skin and authentic sounds make it the most advanced and true-to-life tool for training every assessment scenario imaginable.

Once an assessment has been made, users can train to perform a huge range of treatments, from intubations and thoracostomies to inserting a laryngeal mask. All with an anatomically-faithful attention-to-detail and commitment to realism.



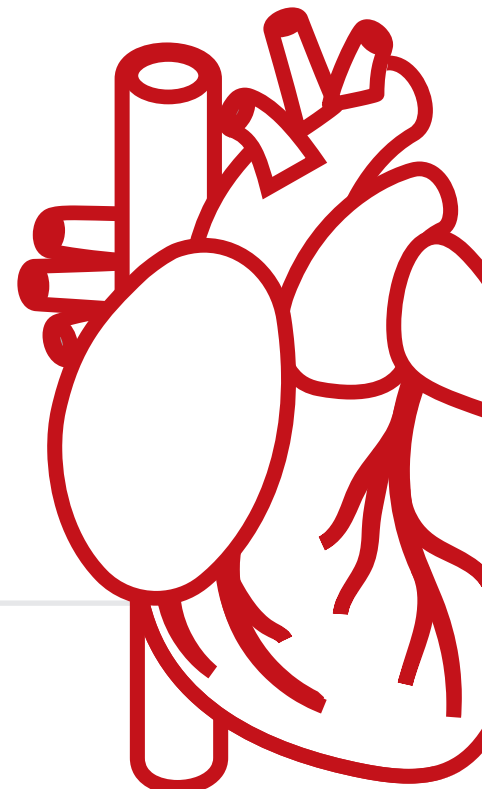




Their heart in your hands

The **NENASim Xtreme** helps users gain complete understanding and familiarity with vital signs, such as blood pressure, pulse rate, and respiratory rate – essential indicators given the unique challenges that pediatric cardiovascular conditions represent.

- Intubation and ventilation
- Head tilt chin lift
- Needle decompression
- Chest tube insertion
- Airway clearance
- Lung Auscultation
- Breathing patterns





Paediatric emergency triage

Pediatric cardiovascular conditions often differ significantly from conditions suffered by older patients. From septal defects and coarctations of the aorta to hypoplastic left heart syndrome, transposition of the great arteries and patent ductus arteriosus, treating pediatric conditions requires knowledge of infants' particular and complex physiology.

That complexity creates a demand for seamless collaboration between multidisciplinary teams and high levels of teamwork mixed with technical skill. While responding to medical emergencies is always tense and distressing for first responders, situations involving infants can be particularly upsetting and hard to shake.



Pulse on umbilical cord



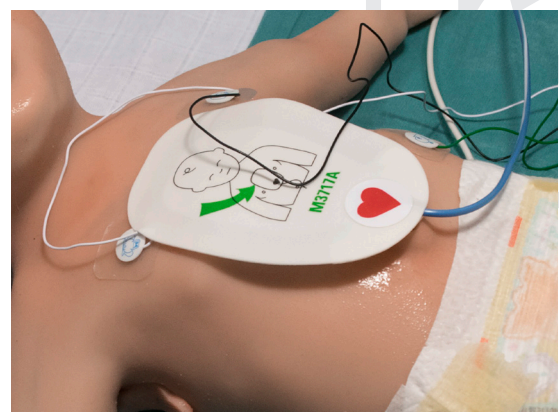
Bag valve ventilation

Research shows that high-quality and realistic simulation-based training is essential for increasing collaboration and confidence and boosting preparedness and decreasing anxiety when treating pediatric cardiac patients.

Vital signs

It's for that reason why NENASim Xtreme's precise levels of realism include a cardiovascular system that simulates blood circulation and cardiac auscultation, along with accompanying vital signs, like blood pressure, pulse rate, and respiratory rate.

Users can even learn and practice live defibrillation techniques, providing industry-leading training realism so that medical professionals are ready to put their knowledge and skills into action at a moment's notice.



Defibrillation





Total scenario training

With the **NENASim Xtreme**, you can simulate complex and demanding medical scenarios that test collaboration and composure under pressure in ways traditional training can't come close to reproducing.

- Tutor software
- Scenario editor
- Patient monitor
- ECG and Sound Editor
- Built-in AV recording possible
- Charger port for wireless use
- Wifi connection





Simulation software

Whether you train students, paramedics, firefighters, doctors, nurses or even military personnel, you know the challenge of preparing professionals to face situations that are chaotic, confusing and unpredictable. Your role is every bit as concerned with passing on soft skills, such as being perceptive, working under pressure, the ability to work with a team and talk to coworkers, and moving efficiently and calmly around the treatment area.

No other simulator comes closer to bridging the gap between technical know-how and real-world experience than the **NENASim Xtreme**. From refresher courses on treating prevalent infant conditions to simulating high-intensity, low-frequency events, such as natural catastrophes, **NENASim Xtreme's** endless customization makes it the most potent simulator for trainers everywhere.

In addition to the huge range of scenarios that come as standard with the **NENASim Xtreme**, trainers and technicians can create new scenarios using state-dependent and independent parameters in the scenario editor. Add the sound editor and ECG editor software, and the number of possible scenarios are endless.



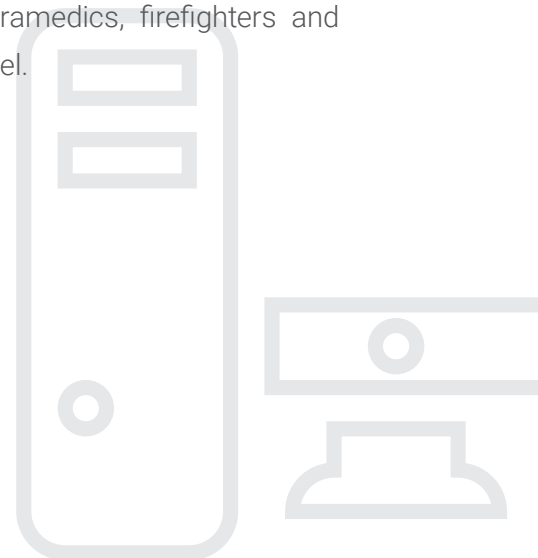
Movement of the head and limbs

Alternatively, the user-friendly simulation software allows instructors to control **NENASim Xtreme's** real-time movements and configure the parameters output on the patient monitor for training interactions outside the standard scenario flows.

However realistic, scenario training is less productive if it can't be fully evaluated and debriefed.

NENASim Xtreme supports trainers in that critical component of their teaching. During training, the **NENASim** software logs all the events, vital signs, actions taken and outcomes, such as the frequency, depth and shape of compressions during heart massage. This gives the tutor the opportunity and data to carry out thorough evaluation and debriefing after the simulation. Tutors can also log their own time-stamped comments directly during simulations.

Finally, the **NENASim Xtreme** controlled, manikin and patient monitor can be operated entirely tetherless and wirelessly. This avoids the use of cables, amplifying the realism, but also means that it can be used to simulate real-world scenarios in the field for paramedics, firefighters and military personnel.







Commitment to care

Learn more about some of the main medical conditions that can be simulated by the **NENASim Xtreme**, as well as the procedures that the simulator can be used to train.



Cyanosis

Intubation

Realistic training for smooth intubation; orotracheal, endotracheal and nasotracheal intubation; fiberoptic intubation and esophageal intubation.

Simulated defibrillation

Treatment can be trained and practiced realistically with the NENASim Xtreme patient simulator.

Airway devices

Insert a laryngeal mask or use a bag valve mask.

Thoracostomy

Needle and tube thoracostomies can be trained with the NENASim Xtreme.

Urinary catheterization

Urinary catheters can be inserted into the manikin's urethra and the umbilical cord can also be catheterized.

Injections

The NENASim Xtreme is ideal for training both intravenous (IV) injections and intraosseous (IO) infusions on infants.



IO leg

Auscultation

Simulate normal, systolic murmur, holosystolic murmur, diastolic murmur, and more heart and lung sounds, with both sides of the heart, lungs and bowel sounds all detectable.

Electrocardiography

ECG can synchronize with pulse and heart sounds, with 12 lead dynamics displayed.

Complex simulations

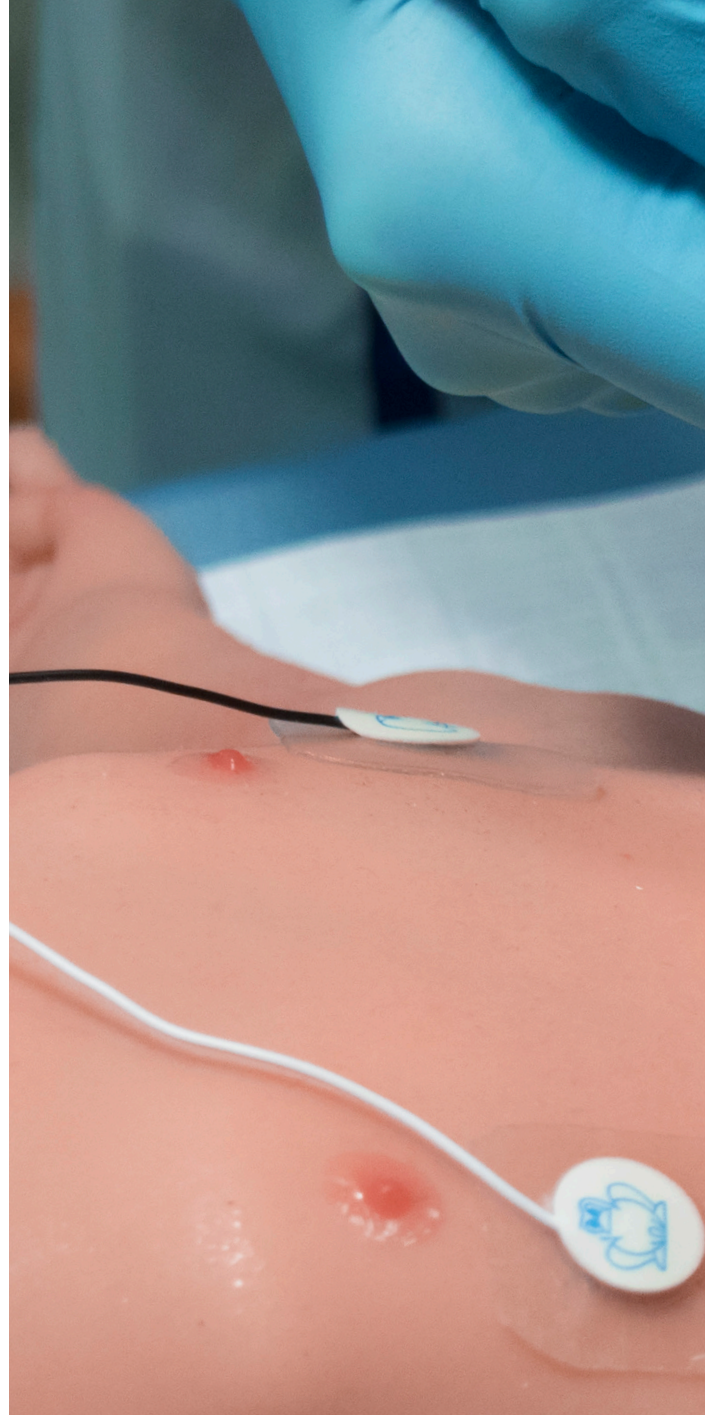
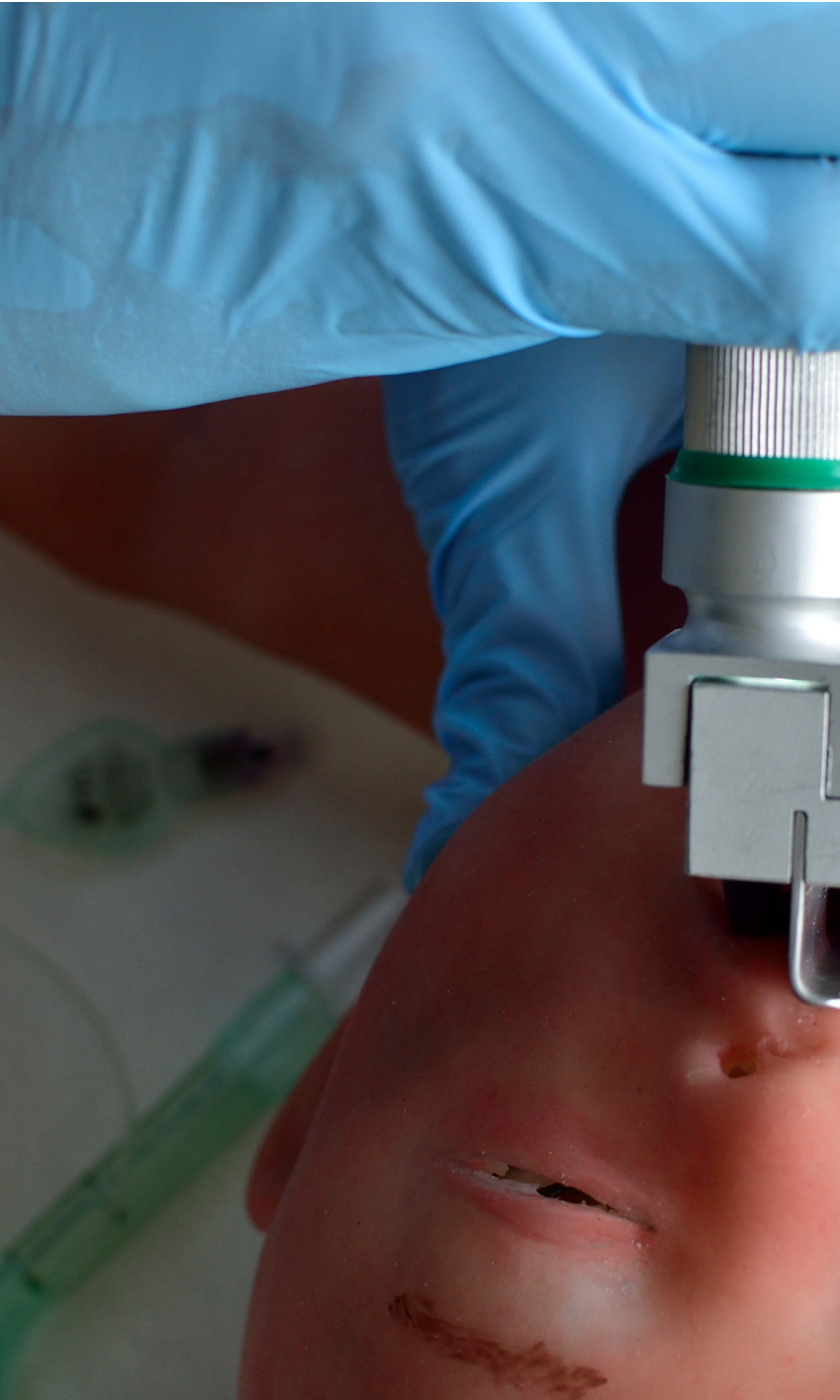
By using the preinstalled scenarios, or creating new scenarios in the editing software, NENASim Xtreme can simulate and train pathologies from anaphylactic shock to pneumothorax.

Patient monitoring

Show vital signs on the patient monitor, such as ECGs, pulse rate and respiratory rate, as well as ambulatory blood pressure, central venous pressure, oxygen saturation, CO2 concentration, pulmonary artery pressure, pulmonary capillary wedge pressure, noninvasive blood pressure, and body temperature.

Other procedures

- Placing IV needles into an arm
- Inserting a chest drain tube
- Monitoring pulse via the umbilical cord





Industry-leading innovation

Complete realism built on cutting-edge technology.

NENASim Xtreme is the most realistic, cost-effective, and time-efficient clinical training aid for medical schools, universities, hospitals, and skills and simulation centers. It improves patient outcomes and helps save lives.

The simulator is the product of a total dedication to realism, the most cutting-edge simulation technology and the exhaustive input of expert physicians. Every element has been developed from the ground up to provide professionals of all levels and tutors with the most realistic and user-friendly simulation and training experience.

The patient simulator and patient monitor are wireless and tetherless so that they can be used anywhere – both inside and outside the medical department. Simulations can be easily customized, while integrated recording features enable highly-productive feedback and training reviews.

Features List

General

- Wireless and tetherless neonatal human patient simulator
- Battery for use without external power supply
- Reproduction of a skeletal and anatomical structure of a baby
- Weight: 5 kg
- Length: 65 cm
- Life-like skin features and skin tone
- Flexible back and neck
- Simulated human patient monitor which is connected with the NENASim

Head

- Life-like face and skin
- Head movement
- Head tilt for CPR
- Eyelid movements
- Possibility to open the eyelids manually
- Dilating and constricting pupils
- Fontanel with palpable pulse and adjustable depth
- Possibility of cyanosis, jaundice, red and pale coloring of the cheeks and chin
- Vocal sounds: laughing, crying, hiccups, coughing and breathing

Torso

- Life-like torso
- Catheterization of urethra

- Cyanosis, jaundice, red and pale coloring of the hands and feet
- IO leg add on
- Temperature measurement (rectal)

Pulmonary system

- Realistic breathing and belly movements
- Realistic bilateral chest rise and fall
- Chest breathing / Sea-saw breathing
- Spontaneous breathing with variable rate
- Bilateral normal and abnormal breathing sounds
- Auscultation of lung sounds
- Lung sounds: normal, coarse crackles, fine crackles, stridor, wheezes, rhonchi and more
- Lung sounds synchronized with breathing movement / respiratory rate
- Oxygen saturation

Airway

- Realistic airway with tongue, vocal cords, trachea, epiglottis and esophagus
- Oropharyngeal and nasopharyngeal airways
- Head tilt / chin lift
- Jaw-thrust maneuver
- Smooth intubation
- Orotracheal, endotracheal and nasotracheal intubation
- Fiberoptic intubation

- Esophageal intubation
- Needle decompression
- Pneumothorax, chest tube insertion
- Unilateral chest rise and fall
- Ventilation measurement and feedback in software
- Oxygen delivery procedures
- Ability to insert a laryngeal mask
- Ability to use a bag valve mask

Cardiovascular system

- 12 lead dynamic ECG display
- Extensible ECG library
- ECG synchronized with pulse, compressions and heart sounds
- Observe blood circulation vital signs like blood pressure, pulse rate and respiratory rate on the patient monitor
- Bilaterally palpable brachial and femoral pulse
- Palpable fontanel pulse
- Umbilical cord with palpable pulse
- Adjustable heart rate
- Heart sounds: normal, systolic murmur, holosystolic murmur, diastolic murmur and more
- Heart sounds synchronized with heart rate and ECG
- Software feedback on the CPR depth, frequency and compressions
- Software feedback on the number of compressions and pause lengths between compressions
- Simulated live defibrillation, pacing



and cardioversion

Auscultation

- Wireless stethoscope simulator
- Listen to isolated sounds without background noise
- Listen to the internal sounds (heart, lungs, bowels). Chest, sides and back: left and right side.
- Listen to the internal sounds (heart, lungs, bowels). Center chest.
- Software feedback on placement of the stethoscope simulator

Package components

- NENASim neonatal simulator
- Suitcase with wheels
- Charger with power cable
- Stethoscope simulator with USB charger cable
- Software
- IO leg add on

Training, service and guarantee

NENASim Xtreme is unlike any other patient simulator available today. While we're confident that the NENASim simulator and software are highly user-friendly, we also understand that this is an advanced product with the need for strong support and service. That's why we provide application training and guarantee the product for two years. Additional service packages can also be delivered.

Actual products may differ from shown hardware and software images. Modification and errors reserved. Version 1220

The NENASim range

	Xtreme	Xpert	Xtra	Xcel
Lifelike anatomical model with human physiology.	✓	✓	✓	✓
Simulate a wide variety of clinical situations.	✓	✓	✓	✓
Realistic airway with tongue, vocal cords, trachea, and esophagus.	✓	✓	✓	✓
Software feedback.	✓	✓	✓	
Spontaneous breathing with variable rate, depth, and regularity.	✓	✓	✓	
Vocal sounds: laughing, crying, hiccups, coughing, and breathing.	✓	✓		
Fontanel with palpable pulse and adjustable depth.	✓	✓		
Possibility of cyanosis, jaundice, red and pale coloring of the cheeks and skin.	✓			



Xact



Infant



Length: 650 mm
Weight: 5 kg
Sex: M
Skin tone: Dark, Medium, Light
Models: Xtreme, Xpert, Xtra, Xcel, Xact

Newborn



Length: 430 mm
Weight: 2 kg
Sex: M
Skin tone: Dark, Medium, Light
Models: Xcel, Xact

Preemie



Length: 320 mm
Weight: 730 grams
Sex: F
Skin tone: Dark, Medium, Light
Models: Xcel, Xact

The NENASim accessories

NENASim Xtreme comes including chargers, and any accompanying accessories, like our stethoscope simulator, IO leg and umbilical cord.



Stethoscope simulator



Umbilical cord



IO leg

The image shows the exterior of a modern, multi-story building with a facade of large, white-framed windows. A prominent sign with a red 'X' logo and the text 'MEDICAL-X' is visible on the ground floor. The building is set against a clear blue sky. In the foreground, there are green bushes and a street lamp. The overall scene is bright and professional.

About Medical-X

MEDICAL-X specializes in the design, development, manufacturing, marketing and distribution of outstanding-quality simulation products for medical teaching and training.

Our mission is to provide healthcare professionals with simulation-based training solutions and cutting-edge technological simulators that are cost-effective and time-efficient to teach and train clinical skills without risk to actual human patients.



MEDICAL-X

ADVANCING SIMULATION

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