

LuSi[™]



**AUTONOMOUS
HUMAN LUNG SIMULATOR FOR NEONATES**

Neonatal ventilation is one of the most demanding skills in acute care - small setting changes can have big physiological consequences. **LuSi** brings that reality into the classroom and simulation lab. By combining realistic lung mechanics with real-time physiological response, **LuSi** helps learners understand not only “*what to set*,” but “*why it works*,” and “*what to do next*” when a newborn deteriorates. Teams can rehearse decision-making, waveform interpretation, alarm management, and escalation pathways repeatedly - building competence and coordination before facing high-stakes situations in the NICU.

LuSi is a high-fidelity neonatal lung simulator integrated into a realistic, life-like silicone baby (approx. 2.5 kg). It is an autonomous ‘human lung’ platform that responds in real time to respiratory support - allowing learners to practice neonatal ventilation safely, repeatedly, and without risk to patients.

LuSi is designed for clinical education and simulation - based training in NICU and newborn resuscitation pathways - helping teams build competence in ventilation strategy, waveform interpretation, alarm management, and escalation decisions.

Autonomous human lung simulator allow to accurately follow the actions of the ventilator and gain an understanding of the dynamics of closed loop control as if there was a patient but without harming a patient.



LuSi is loaded with sensors to enable the physiological response that makes it so **UNIQUE**.

The wireless operation makes LuSi completely tetherless and independent for hours of operation.

FEATURES

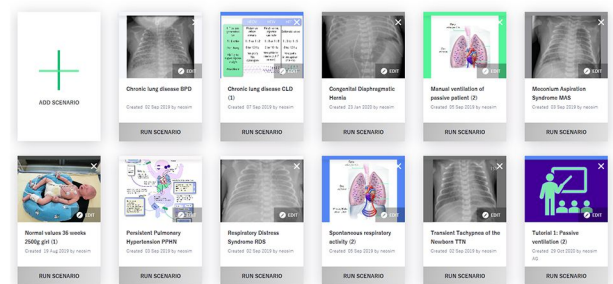
LuSiLIFE is a touch-screen enabled, case-building and execution program for **LuSi**.

LuSi responds to treatment without operator intervention and can simulate pathologies like RDS, lung collapse, weak muscular activity, pneumothorax, airway obstruction, etc.

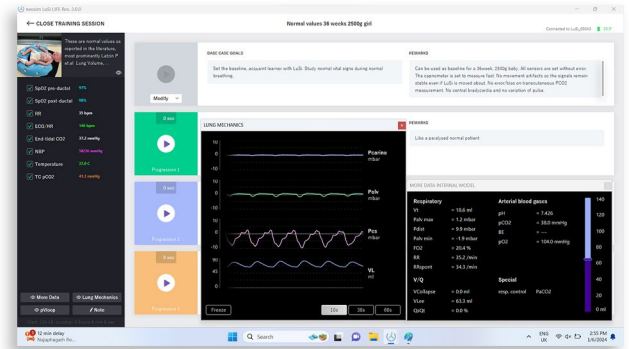
The design and selection of pathologies is controlled by **LuSiLIFE**, a touch-screen enabled, pathology building and execution program. Execution of pre-assembled cases, loading of patient case libraries, on-the-fly changes, notes-taking, and complete data recording for later analysis.

LuSiLIFE provides Scenario execution and design in one single package.

- **MANAGE** your scenario library
- **RUN** scenarios and store results Strategies
- **EDIT** cases and test them
- Show **VITAL SIGNS** in real-time
- **CALIBRATE** facility



- RUN SCENARIO mode to execute pre-set cases with one-click launch simulations from base-case through progressions and escalations.
- EDIT mode to design and test cases, create and maintain your own patient library and test your Scenarios before execution.
- Scenario library manager to edit, run and add Scenarios. Add pictures and colors for easy selection and recognition.

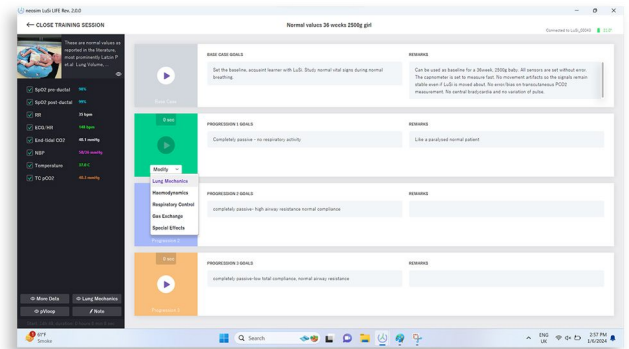


Start with the Base Case. Since LuSi responds to treatment, vital signs will change autonomously. Enable vital signs the learner measures to see the effect of treatment. Hide vital signs the learner does not measure to create suspense.

LuSiLIFE runs on any Windows-based System and enables one-click execution of pre-assembled cases and scenarios.

Change parameters on the fly to adapt to certain situations. Use the Edit Drop down menu to access all parameters for :-

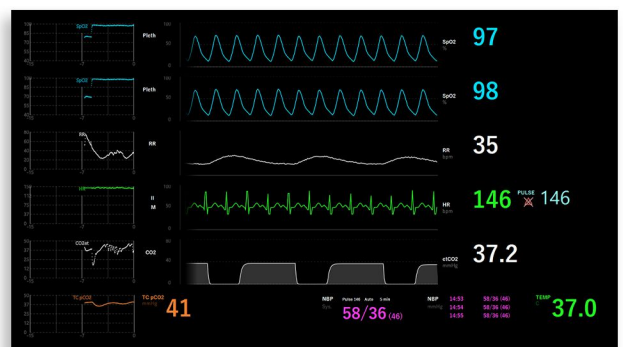
- Lung Mechanics
- Hemodynamics
- Respiratory Control
- Gas Exchange
- Special Effects



More than 60 parameters govern the physiology of LuSi. Physiological gas exchange models can be made automatic or operator-determined.

LuSi is completely independent of any external Control and reacts to therapy without operator intervention.

- Use the Vital Signs Monitor window to display the results of treatment in real-time.
- Configure the monitor to match the device of your unit. Modify technical features of monitors, for example, the rise time of capnometers, to teach potential and limitations for use in neonates.
- LuSi can be used in the hospital setting or out-of-hospital in any training facility because it does not need CO2 gas or actual monitoring equipment. The vital signs parameters are calculated based on actually measured values such as pressure, flow and volume plus case-specific pathology like dead space, CO2 production and lung compliance.



APPLICATIONS

LuSi enables learners to see the physiological impact of ventilation decisions - supporting closed-loop learning: choose a strategy, observe the response, correct, and repeat. This accelerates skill acquisition and confidence before real clinical exposure.

- CPAP/NCPAP initiation and optimization
- High-flow oxygen therapy
- Invasive ventilation fundamentals
- High-frequency ventilation concepts
- Response to surfactant therapy and recruitment strategies
- Waveform/ventilation data interpretation and clinical decision-making
- Ventilator alarm setup, prioritization, and troubleshooting
- Vital signs interpretation and team communication during deterioration



LuSiLIFE Package Includes

LuSi comes plug-and-play including the baby, built-in rechargeable batteries, battery charger, storage bag, technical support material and the PC based case-building and execution software LuSiLIFE with integrated vital signs display. Optionally, any size external monitor can be added to display vital signs.



CLINICAL USE DISCLAIMER: *LuSi* is licensed for use for education and training purpose only and not intended for clinical use.