neosim

LuSi™

AUTONOMOUS HUMAN LUNG SIMULATORS

www.neosim.ch

HIGH - FIDELITY , Neonatal lung simulator in the body of a 2500g Realistic life-like Silicon baby

Autonomous human lung simulator with real - time feedback for high quality respiratory therapy training and education.

- Clinical training on mechanical ventilation for hospitals, simulation centres, universities.
- Design support and testing of respiratory devices for manufacturers, test-houses, biomedical engineering.
- Quality assurance for hospitals and manufacturers of respiratory care devices.

Autonomous human lung simulators 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.

Autonomous human lung simulators allow clinicians to expose the workings of their intensive care ventilators and respiratory support devices- and to improve the management of patients.

Models are based on published scientific literature, for example Latzin et.al. Lung volume, Breathing Pattern and Ventilation Inhomogeneity in Preterm and Term Infants. PLoS One 2009:4/2 e4635.

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

Autonomous human lung simulator to train clinicians inthe assessment of pulmonary function and theapplication of respiratory therapy without risk to patients:

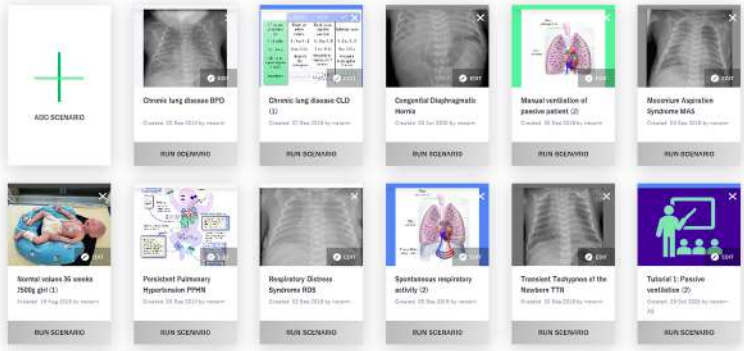
- Application of NCPAC
- High-flow oxygen therapy
- Invasive ventilation
- High-frequency ventilation
- Effects of surfactant therapy
- Interpretation of ventilation data
- Ventilator alarm setting
- Interpretation of vital signs

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 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.

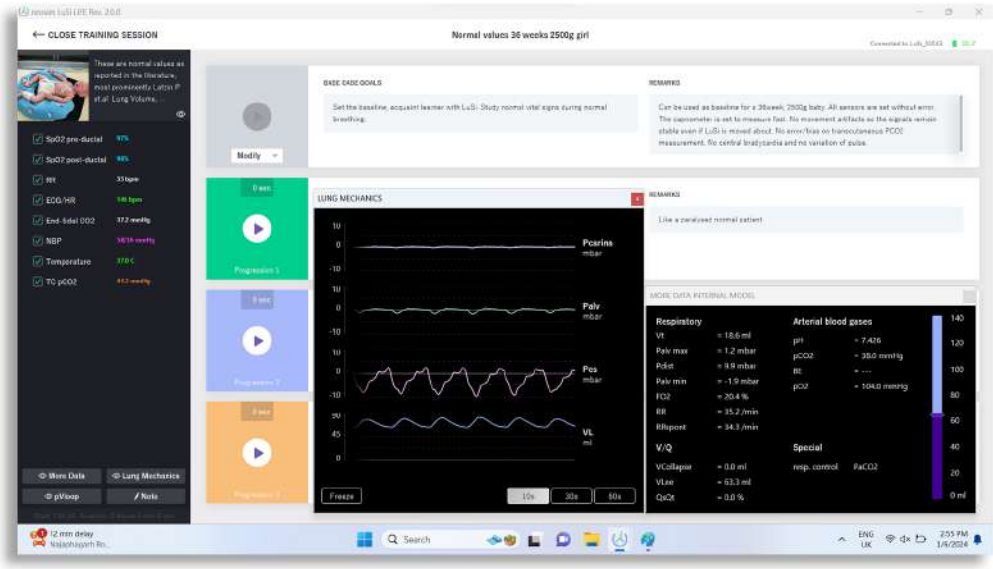
LuSiLIFE provides Scenario execution and design in one single package.

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



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

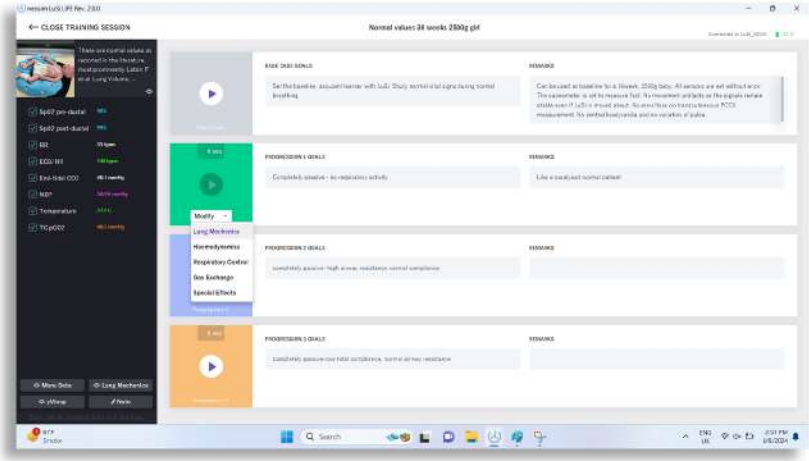
- RUN SCENARIO mode to execute pre-set cases with one-click. Launch simulations from base-case through progressions and escalations.
- EDIT mode to design and test cases, create and maintain your own patient library and test your Scenarios before execution.
- Scenario library manager to edit, run and 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.

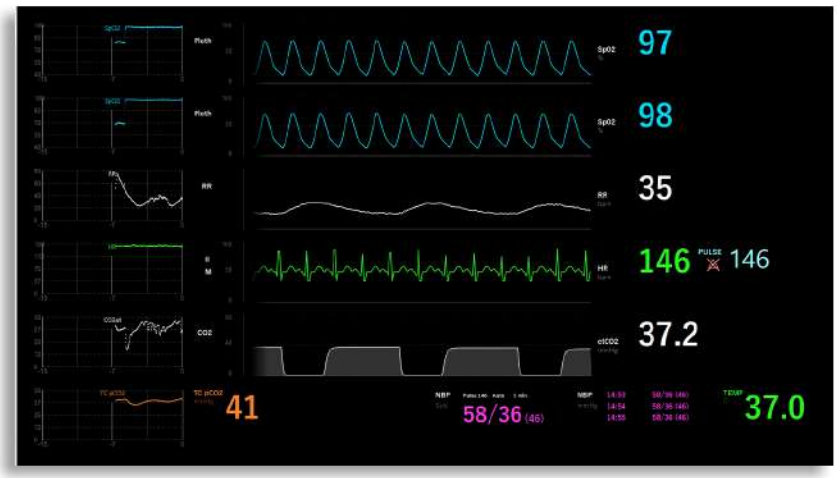
Change parameters on the fly to adapt to certain situations.Use the Edit Drop down menu to access all parameters for :-

- 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.
- 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.

SWISS PRECISION

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