

Improving patient safety in obstetrics

Simulation has gathered increasing acceptance over the years as an integral part of healthcare training and a fundamental approach to helping improve patient safety.

In the field of obstetrics, it has been identified from a broad range of research into suboptimal patient outcomes that common contributory factors include: confusion in roles and responsibilities, lack of cross-monitoring, failure to prioritize and perform clinical tasks in a structured, coordinated manner, poor communication and lack of organizational support. (The Joint Commission, 2004, Draycott et al. 2009)

Draycott et al.(2009) found that obstetric-specific training interventions with integrated teamwork have been associated with clinical improvements and found that certain elements have to be involved in the training:

- Institution-level incentives to train with high participation rate
- Multi-professional training with all staff in their department
- Teamwork training integrated with clinical training and use of simulation models.

SimMom has been developed to provide a comprehensive simulation solution to support multi-disciplined staff in obstetric care by enabling them to refine both their individual and team performance, to reduce the risk of adverse events through the birthing process.



SimMom



Partnership

SimMom has been developed by Limbs & Things and Laerdal in partnership combining the best that each company has to offer in healthcare simulation products. Built upon the success of the two leading products in the market, the PROMPT Birthing Simulator and the ALS Simulator, SimMom provides customers with the best of two worlds. The level of realism both in terms of anatomy and obstetric experience provided by Limbs & Things, and the easy to use full-body simulation system provided by Laerdal, presents a total solution for simulation training in an obstetric environment.



Bringing Skills Training to Life

Limbs & Things designs, manufactures and promotes clinical and surgical skills training products. The company is dedicated to improving patient care by supporting healthcare professionals in their training.

Helping Save Lives

For more than 50 years, healthcare providers and educators have trusted Laerdal to offer products, services and solutions that help improve patient outcomes and survivability.

By supporting the advancement of resuscitation science, improving medical education and strengthening the chain of survival in communities worldwide, we help you save more lives.



Improving maternal and neonatal outcomes

SimMom™

Birthing Simulation Solutions

SimMom™

SimMom is an advanced full-body interactive birthing simulator. By combining the Limbs & Things PROMPT Birthing Simulator and the Laerdal ALS Simulator – SimMom offers the functionality required to train in a wide range of midwifery and obstetric skills. SimMom anatomy and functionality allows for multi-professional obstetric training of labor and delivery management.

Providing full-scale interactive, dynamic and **engaging simulation**, SimMom is a complete solution that also includes accessories, technical services, educational services and courseware. Preprogrammed scenarios will provide standardized training while customizable scenarios and **real-time instructor controls** allow for scenario adaptation to accommodate individual student or team needs.

Design elements such as video, audio, scenarios and recognizable environments enable learning to be transferred from the clinical setting to bedside care for mother and child in complex birthing scenarios.

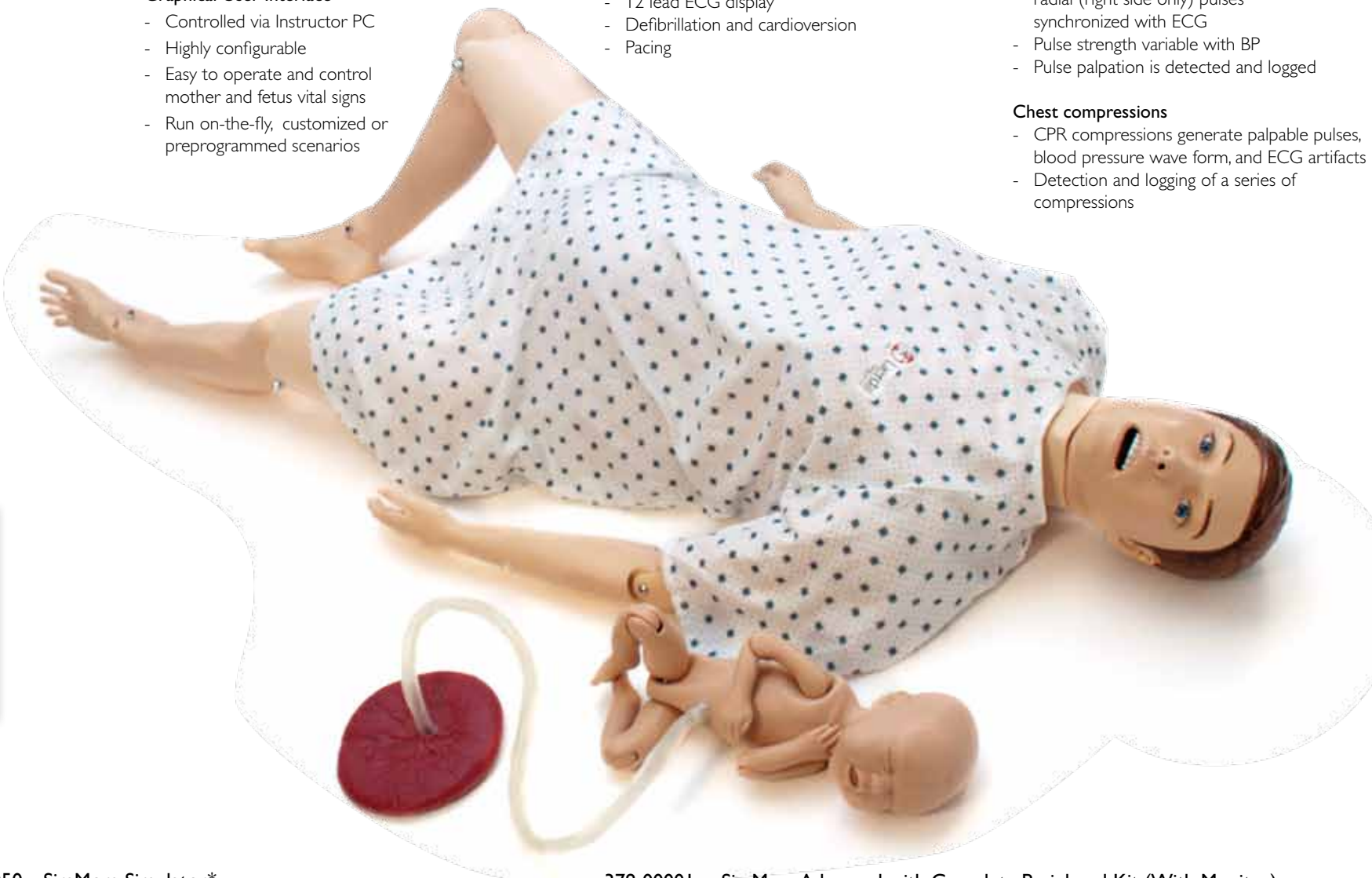
Simple operation allows users to build basic to advanced level scenarios appropriate for required learning objectives. The familiar **VitalSim platform**, manual delivery system and computer control make the simulator simple to use.

SimMom provides **realistic practice of multiple delivery positions** and maneuvers, teamwork, leadership and communication skills in a risk-free environment. Uterus modules add further realism and extend the application of the simulator.

SimMom can be used as a **hybrid trainer** or as a **full-body simulator**. In addition, it can be used for nonobstetric training as well as a pregnant female simulator.



Graphic User Interface



Breathing features

- Simulated spontaneous breathing
- Variable respiratory rates
- Bilateral and unilateral chest rise and fall
- Normal and abnormal breath sounds
 - 4 anterior auscultation sites
 - Bilateral midaxillary site
- Can be connected to ventilators

Other features

- Bowel sounds and fetal heart rate (not at the same time)
- Eye Inserts, manually change pupils
- Patient voice
 - Pre-recorded sounds
 - Custom sounds
- Instructor can simulate patient's voice wirelessly

Vascular access

- Pre-ported IV access (both arms)
- Subcutaneous and intramuscular injection sites

Graphical User Interface

- Controlled via Instructor PC
- Highly configurable
- Easy to operate and control mother and fetus vital signs
- Run on-the-fly, customized or preprogrammed scenarios

Airway features

- Obstructed airway
- Tongue edema
- Right lung, left lung and both lung blockage
- Head tilt/Chin lift
- Jaw thrust
- Suctioning techniques can be practiced
- Bag-Valve-Mask ventilation
- Oropharyngeal and nasopharyngeal intubation
- Combitube, LMA and other airway placement
- Endotracheal intubation (ET)
- Retrograde intubation
- Digital intubation
- Surgical cricothyrotomy and needle cricothyrotomy
- Sellick maneuver
- Airway resistance and compliance

Cardiac features

- Extensive ECG library
- Heart sounds synchronized with ECG
- ECG rhythm monitoring
- 12 lead ECG display
- Defibrillation and cardioversion
- Pacing

Pelvic components

- Uterus modules (for PPH, uterine inversion and retained placenta)
- Fluids (e.g. blood, stained amniotic fluid and urine)
- Urine catheterization/instillation

Movement

- Seizure
- Able to position at all fours:
 - Realistic rotation of the shoulder and hip joints
 - Legs bend at the knees
 - Arms bend at the elbow
- Other positions:
 - Supine
 - Semi-recumbent
 - Left lateral
 - Legs in stirrups

Circulation features

- BP measured manually by auscultation of Korotkoff sounds
- Bilateral carotid and brachial pulse, radial (right side only) pulses synchronized with ECG
- Pulse strength variable with BP
- Pulse palpation is detected and logged

Chest compressions

- CPR compressions generate palpable pulses, blood pressure wave form, and ECG artifacts
- Detection and logging of a series of compressions



Multiple birthing positions can be performed



The bleeding scenario can be combined with maternal physiology (e.g., hypovolemic shock)



Atonic uterus can be recognized and managed



Managing difficult airway during complex delivery



Different uterus modules includes PPH, atonic uterus and retained placenta



Birthing Baby

- Realistically modeled head with all landmarks present (fontanelles and sutures)
- Head designed and tested so it can be used for forceps deliveries (rotational and "normal") and suction delivery (kiwi and ventouse)
- Head can be easily manipulated by "trainer" and flexes naturally as it is pushed through the birth canal
- Mouth for suction and Smellie-Veit (if required)
- Body "streamlined" to allow it to be easily pushed through birth canal
- Bony prominences of the hips to support Lovsett's maneuvers
- Realistically positioned landmarks - scapulae and clavicles
- Arms and legs fully moveable to allow all maneuvers required during deliveries - particularly breech and shoulder dystocia
- Umbilicus and placenta (normal and retained)
- Fetal heartrate: normal, bradycardia and brachycardia

EFM (Electronic Fetal Monitoring)

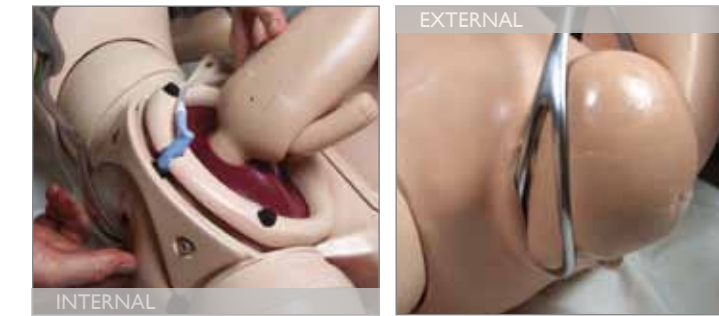
- EFM graphic display Fetal Heart Rate waveform and Uterine Activity waveform
- EFM is displayed on the patient monitor with mother's vital signs
- Fetal monitoring is recorded and it is possible to scroll back to view on the patient monitor
- The software allows the instructor to use the preset states as well as utilize the customized parameters
- Interpreting EFM requires regular training and updates. The recommendation is to update software every six to twelve months (CESDI/RCOG)

Realistic Positions and Maneuvers

The trainer enables the practice of multiple realistic delivery positions and maneuvers



Pelvic Module can be easily changed by unscrewing and removing the pelvic ring clamp. Urethral tube allows the bladder to be catheterized or instilled for cord prolapse. The birthing baby engaged into simple delivery cervix module



Instrumental delivery using Kiwi/Ventouse suction cup or forceps. The trainer is able to feel the force, maneuvers and techniques that are used by the deliverer, and can give constructive feedback in the debriefing



When shoulder dystocia is diagnosed, the trainer can simulate "turtle neck" sign and press the shoulder up against the mother's pelvis to add realism and complexity to the scenario



The father or a family member is a natural participant in the delivery room, and can easily play the role of the trainer and maneuver the birthing baby



SimStore
SimDeveloper
SimManager
SimView

SimMom Advanced includes your choice of courseware available on SimCenter. Visit www.mysimcenter.com to learn how you can fully optimize your learning experience.

377-05050 SimMom Simulator*

SimMom Simulator Includes:

SimMom Simulator; Birthing Baby; 4 Uteri Modules, Set of Consumables, Blood Pressure Cuff, and Directions for Use.

* For customers who have a VitalSim control unit and compressor. Software must be purchased separately.

378-00001 SimMom Advanced with Complete Peripheral Kit (With Monitor)

SimMom Simulator Advanced Includes:

SimMom Simulator; Birthing Baby; 4 Uteri Modules, VitalSim Control Unit, Laptop PC, Touch Screen Monitor; USB Webcam, SimNewB Compressor; Blood Pressure Cuff, Set of Consumables, Operating Software, Directions for Use, and a Carry Case. SimMom Advanced also includes scenarios available on SimCenter (qty and procedure TBD).