# Gaumard®
Simulators for Health Care Education

# NOELLE® S575.100

Advanced Maternal and Neonatal Birthing Simulator

Prepare your learners and staff for even the most complex labor and delivery scenarios. At the click of a button, NOELLE simulates routine and high-risk deliveries for training and assessment. And with tetherless and wireless technology, NOELLE can deliver anywhere, anytime, just like a real patient.
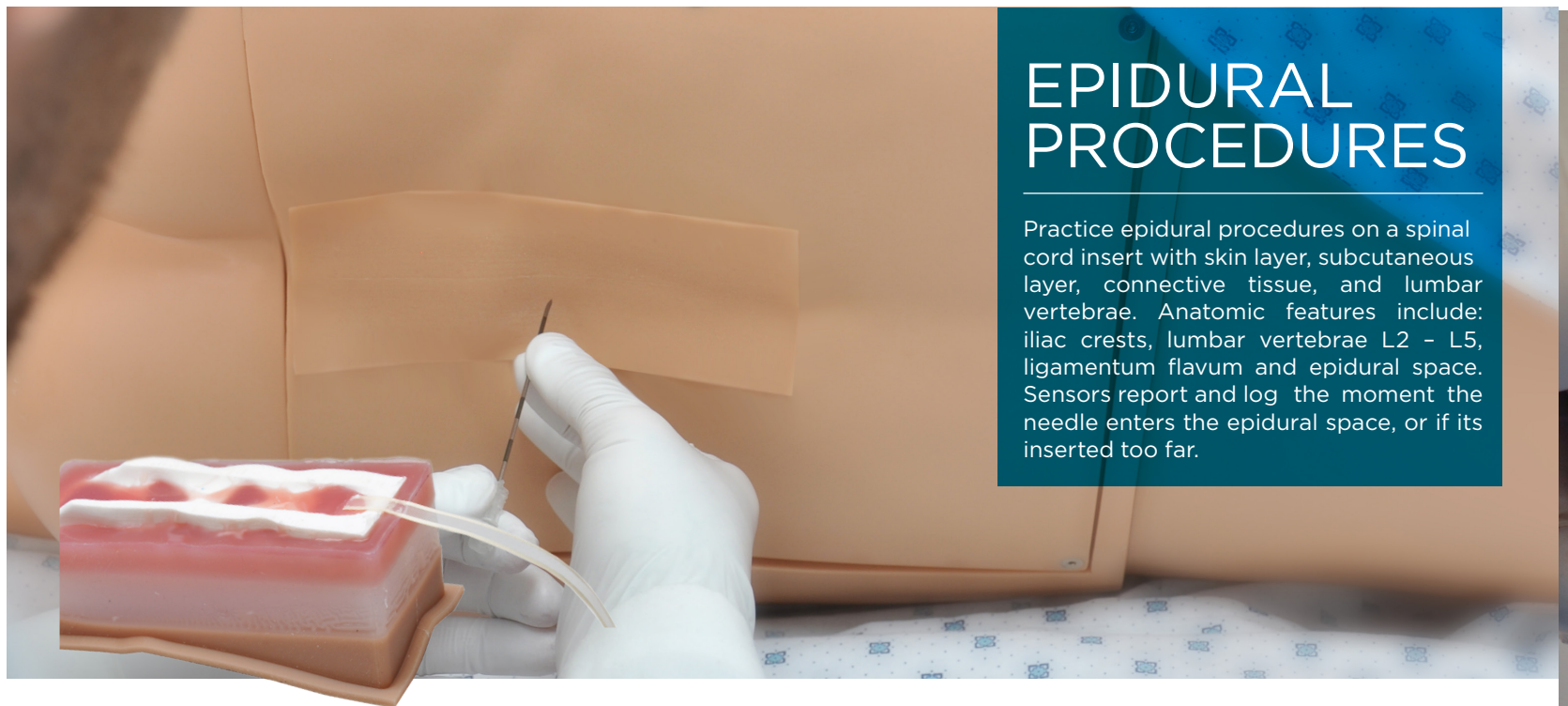
# EPIDURAL PROCEDURES

Practice epidural procedures on a spinal cord insert with skin layer, subcutaneous layer, connective tissue, and lumbar vertebrae. Anatomic features include: iliac crests, lumbar vertebrae L2 – L5, ligamentum flavum and epidural space. Sensors report and log the moment the needle enters the epidural space, or if its inserted too far.



## AUTOMATED PRECISION DELIVERY SYSTEM

With the click of a button, NOELLE's automatic delivery system moves the fetus throughout the labor stages for repeatable lifelike births. Built in sensors track participant interaction and give you real time performance feedback.
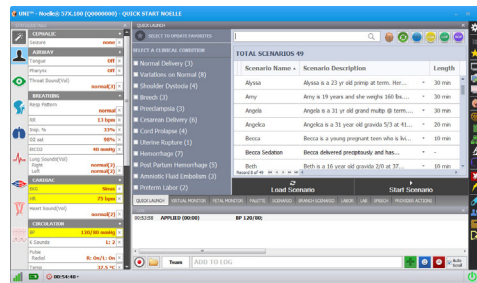


## LABOR AND DELIVERY SCENARIO LIBRARY

Start simulation right away. Select from 45+ preprogrammed labor and delivery scenarios including shoulder dystocia, vaginal breech, postpartum hemorrhage, C-section, and much more. Includes supporting scenario training textbooks.



## PALPABLE CONTRACTIONS

NOELLE's contraction abdominal cover allows palpation of real time contractions during a scenario. The cover gets firm as the contraction peaks.



## REALISTIC FETAL PALPATION

Realistic amniotic sac inside palpation abdominal cover creates a natural and realistic feel when practicing palpation exercises.



## DYSTOCIA MANAGEMENT

Simulate an obstructed labor, including a lifelike shoulder dystocia complication. Practice management techniques and maneuvers such as McRoberts, Woods screw, "hands and knees", and much more.

## PRACTICE C-SECTIONS USING REAL SURGICAL INSTRUMENTS

Multi-layer abdominal wall with skin, subcutaneous tissue, fascia, muscle, and peritoneum for maximum realism. Abdominal inserts have simulated blood incorporated into the subcutaneous layer. Use real surgical instruments for incision, dissection, and suturing.
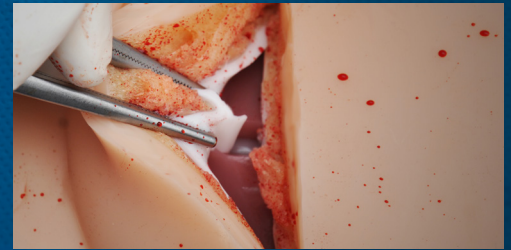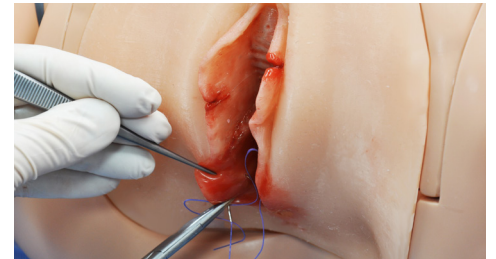




### LIFELIKE BIRTH CANAL

New lifelike birth canal simulates human tissue. Birth canals are removable and are designed to withstand more than 75 deliveries.

### PELVIC LANDMARKS

Anatomic landmarks include bilateral ischial spines, coccyx and pubic symphysis.

### EPISIOTOMY REPAIR

NOELLE's episiotomy repair inserts simulate human tissue that can be sutured repeatedly. Inserts feel and look real.

# ADVANCED OBSTETRIC SIMULATION | *Smart Delivery Neonates*

NOELLE® includes two delivery neonates designed to simulate lifelike vertex and breech deliveries. Participants can palpate sutures lines and fontanelles. Manipulate the jointed arms and legs, while managing any potential umbilical cord or placenta complication.

## SMART VERTEX DELIVERY BABY

The Smart Vertex Delivery Baby has audible heart sounds before, during, and after delivery. Monitoring technology reports pull-force applied by the participant in real time.

## BREECH DELIVERY BABY

Prepare your participants for low frequency deliveries. Simulate multiple breech positions to train for C-section and vaginal delivery management techniques.

## TRAIN FOR NEONATAL RESUSCITATION & NEONATAL CARE SIMULATION

Expand your labor and delivery simulation training to include essential neonatal resuscitation scenarios. Gaumard's wireless neonates allow participants to train for critical neonatal care skills that can help save lives. Select a wireless NOELLE and Neonate bundle package and save.

## NOELLE® WITH NEWBORN HAL®

### S575.100

The S3010 Newborn HAL is a wireless full term baby, perfect for neonatal care simulation. Train participants in assessment, intubation and airway management, CPR, IV or I/O access, ECG, and much more even in transit. HAL includes a dedicated control tablet PC and a library of preprogrammed scenarios that allow you to train staff in team hand-offs and communication.

## NOELLE® WITH PREMIE HAL®

### S576.100

The S3009 Premie HAL is a wireless preterm baby designed for lifelike simulation in the NICU, or in transit inside an isolette. Train for the treatment of premature infant care including: assessment, intubation and airway management, resuscitation, and much more. Control Premie HAL using its dedicated tablet PC and run preprogrammed scenarios linked to NOELLE's delivery condition.

# ADVANCED OBSTETRIC SIMULATION | *The Noelle® Simulators*

## AUTOMATED DELIVERY
Click "Play" to start the automatic delivery system. The motor has automated control of both descent and rotation of the fetus as it descends.
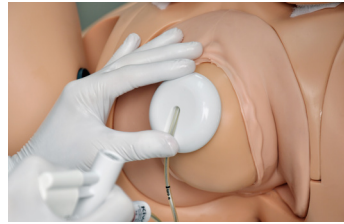
## ASSISTED DELIVERY
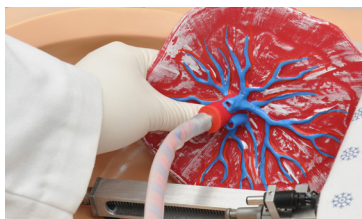Practice assisted vacuum extraction and forcep deliveries.

## SHOULDER DYSTOCIA
Lifelike shoulder dystocia presents with notable fetal head retraction to simulate observable "turtle signs." Practice advanced management techniques.

## BREECH DELIVERY
Practice vaginal breech deliveries and free the legs using Pinard maneuver.

## PLACENTA
Simulate cord and placenta complications and distress. Placenta features detachable fragments.

## SCENARIO LIBRARY
Includes 45+ labor and delivery scenarios including high risk deliveries and postpartum complications. Includes training guides.
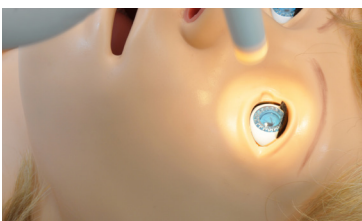
## POSTPARTUM ACTIVITY
Use the postpartum uterus and program PPH, perform a fundal massage, practice episiotomy repair and insert and inflate a Bakri Balloon.

## TETHERLESS
NOELLE functions fully while tetherless, allowing you to easily transport NOELLE like a real patient.

## PATIENT ASSESSMENT
Programmable lifelike blinking, pupil reaction, convulsions, chest rise, and much more.

## REPEATABLE CONTROL
Simulate repeatable deliveries for competency based training. Track skill improvement in critical situations.
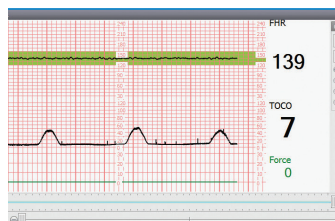
## REAL-TIME FEEDBACK
Monitor and log pull force applied to fetus, contractions, and vital signs. Signals alert when excessive force is used.

## USE REAL DEVICES
Use your real equipment such as a real OSAT monitor, BP cuff, defibrillators or external cardiac pacemakers.

# ADVANCED OBSTETRIC SIMULATION | *Interactive Maternal & Fetal Monitors*

## INTERACTIVE MATERNAL & FETAL MONITORS

The Gaumard virtual maternal and fetal monitors display real-time vital signs and fetal monitoring information. With onscr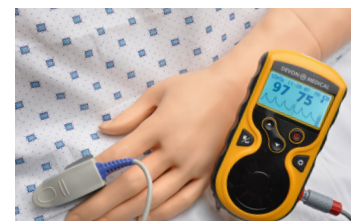een file sharing capability, participants have access to simulated lab reports and medical images that enhance realism during simulation. Train participants to interpret vital signs information helpful in identifying and managing critical situations.

## INCLUDES VITAL SIGNS MONITORS FOR NOELLE AND NEONATE

- 20in touchscreen Patient Monitor "all-in-one" PC. 17in touchscreen Fetal/Newborn monitor

- Display up to 12 numeric values including HR, ABP, CVP, PAWP, NIRP, CCO, SpO2, SvO2, RR, EtCO2 temperature, and time

- Customize each trace independently; users can set alarms, and time scales

- Share images such as x-rays, CT scans, ultrasounds, lab results, and even multimedia presentations as the scenario progresses

- Select up to 12 dynamic waveforms including ECG Lead I, II, III, aVR, aVL, aVF, V1, V2, V3, V4, V5, V6, AVP, CVP, PAWP, pulse, CCO, SvO2, respiration, capnography
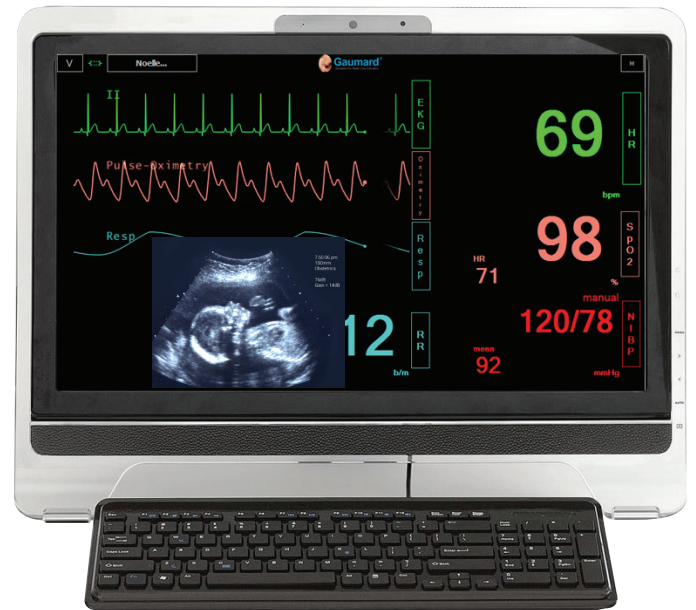


Standard 20in "all-in-one" touchscreen monitor to display vital signs
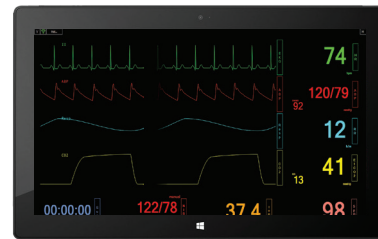


Optional 12in touchscreen tablet to display vital signs

## INTERACTIVE PERINATAL MONITOR

The perinatal monitor lets the participants monitor:
- Baseline fetal heart rate
- Fetal heart rate variability
- Accelerations
- Decelerations
- EFM and FSE heart tones
- Uterine contractions frequency and intensity
- Trace history w/ print out capability
- All fetal vital signs are fully programmable

# ADVANCED OBSTETRIC SIMULATION | *UNI® Software*
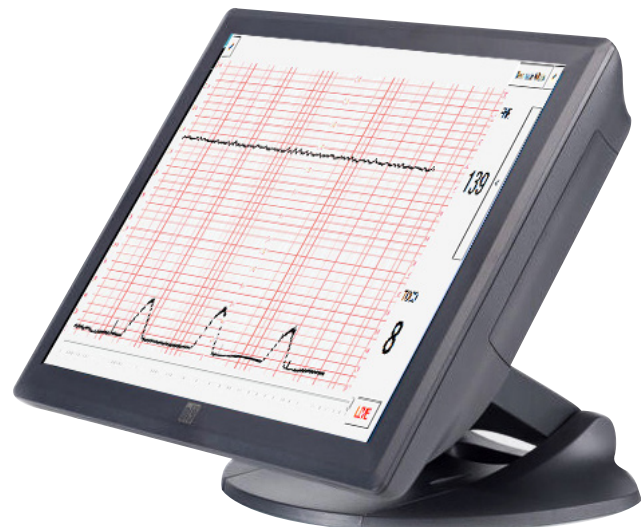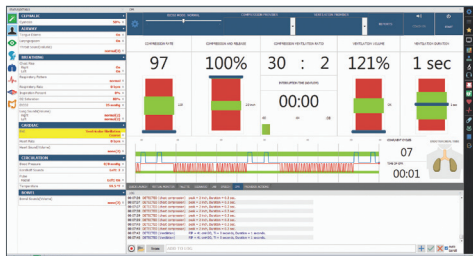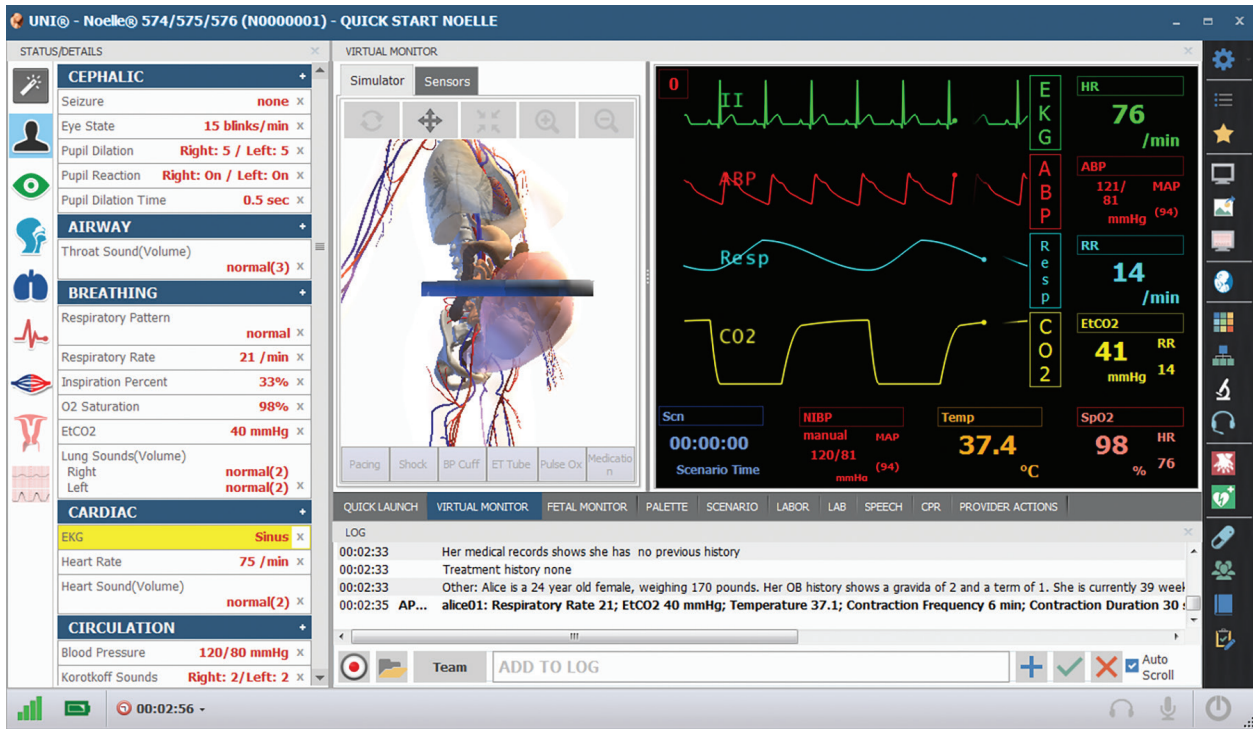




## ECPR™

Monitor CPR quality metrics in real-time including rate and compression depth, no-flow time, and excessive ventilation.
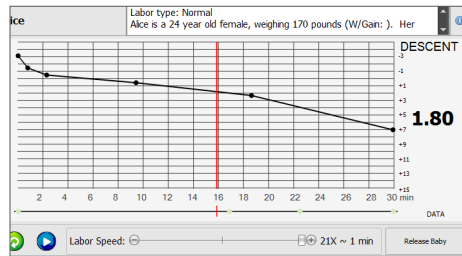


## LABOR CONTROL AND DESCENT CURVE

Define labor variables such as: labor duration, delivery position, contraction response, and much more. Descent Curve graph defines the position of the fetal head relative to the ischial spines.



## PERINATAL MONITOR

Easy instructor access to the dynamic Perinatal Monitor right from the tablet PC.
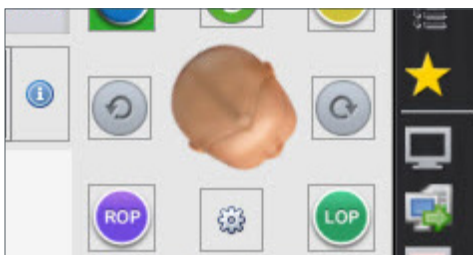


## CARDINAL MOVEMENTS

Precise control over both fetal translation and rotation. Start delivery at ROA, LOA, LOP or ROP.
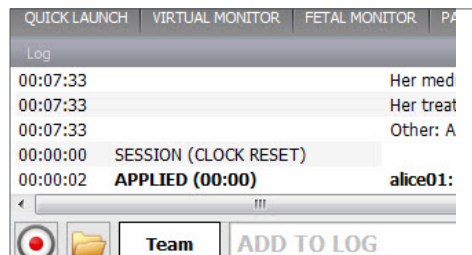


## EVENTS LOG

Changes in condition and care provided are time stamped and logged.
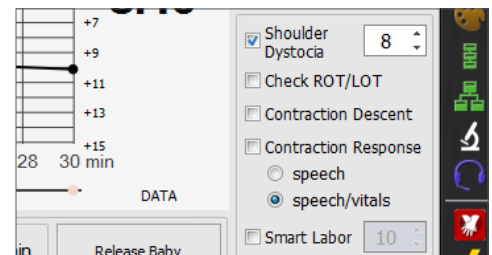


## SHOULDER DYSTOCIA

Simulate a shoulder dystocia complication at the click of a button.

## POWERFUL YET INTUITIVE.

Our intuitive and powerful software offers ease of use and the flexibility required by the most demanding users. Basic view provides windows for the 3D model of the simulator, a completely configurable vital signs monitor, activities log, perinatal monitor and labor curve.



**BREATHING** ⏸ ⋯ +
| RR | 13bpm | × |
| OSat | 98% | × |

**CARDIAC** ⏸ ⋯ +
| EKG | Sinus | × |
| HR | 70bpm | × |

**CIRCULATION** ⏸ ⋯ +
| BP | 120/80mmHg | × |
| Temperature | 37.5°C | × |

**UA FHR** ⏸ ⋯ +
| Contraction Frequency | 5 | × |
| Contraction Duration | 40 | × |
| Contraction Intensity | 40 | × |
| Resting Tone | 8 | × |
| FHR Baseline | 140 | × |
| Variability | minimal | × |
| Accel/Decel Intensity | average | × |
| Spontaneous Changes | none | × |
| Periodic Changes | none | × |
| Variable Changes | none | × |

**BREATHING** ⏸ ⋯ +
| RR | 40bpm | × |
| OSat | 98% | × |

**BOWEL** ⏸ ⋯ +
| Bowel Sounds | normal | × |

**CEPHALIC** ⏸ ⋯ +
| Cyanosis | 0% | × |
| Muscle Tone | limp | × |

**CIRCULATION** ⏸ ⋯ +
| BP | 60/35mmHg | × |
| Temperature | 37.5°C | × |

**CARDIAC** ⏸ ⋯ +
| EKG | Sinus | × |
| HR | 140bpm | × |

# NOELLE | *Smart Delivery Neonates*

## NOELLE

### FEATURES

- Powerful and intuitive UNI™ software
- Practice epidural procedures on a spinal cord insert with skin layer, subcutaneous layer, connective tissue, and lumbar vertebrae
- Practice C-Sections using real surgical instruments
- C-Section Abdominal inserts have simulated blood incorporated into the subcutaneous layer
- Built for a perfect fit into birthing stirrups
- New lifelike birth canal simulates human tissue Episiotomy repair inserts simulate human tissue that can be sutured closed repeatedly
- One breech and one vertex fetus
- Anatomic landmarks include bilateral ischial spines, coccyx and pubic bone
- NOELLE's new palpation module includes an amniotic sac creating a natural and realistic feel when practicing palpation exercises
- NOELLE's fetus rotates, dips and rises in response to commands from a wireless tablet PC
- Program tongue edema and pharyngeal swelling

### OBSTETRICS

- Realistic birth canal with dilating cervix
- Precision programmable fetal delivery system for repeatable teaching exercises including:
  - » Normal Labor and Birth
  - » Instrumented Delivery
  - » Shoulder Dystocia
  - » Breech Presentation
  - » C-Section
- Delivery system can be programmed for rapid deliveries as well as those taking hours
- Program fetal descent over time
- Pause, continue or accelerate labor at any time
- Fetal monitor interacts with labor scenario
- Apply maternal and fetal vital signs at specified points during the labor
- Select descent ONLY during uterine contractions
- Precise control over both fetal translation and rotation
- Start delivery at ROA, LOA,LOP or ROP
- Program internal and external fetal rotationsas needed
- Program dystocia so that each student receives exactly the same scenario
- Save and share scenarios and results for use later

- At least 30 obstetric scenarios that can be modified as the instructor requires
- Ability to quickly and easily create new scenarios as the instructor requires
- Ability to change maternal, fetal or delivery conditions during the scenario
- Measure and log force experienced by fetus and cardinal movement with respect to contractions
- Force and shoulder position are graphed in real time with the uterine contraction
- Fetus may be used for external version Install fluids for bleeding and urinary catheterization
- Programmable bleeding from birth canal
- Forceps and Vacuum-Assisted Delivery
- Uterine module for PPH
- Postpartum hemorrhage and fundal massage
- Intrapartum Modeling and Trending
- Shoulder Dystocia
- Breech and Vertex Delivery
- Leopold Maneuver
- C-section: using dissectible stomach cover including realistic skin, subcutaneous, fascia, rectus muscle, and peritoneum
- Episiotomy Repair
- Prolapse of the Umbilical cord
- Placenta Previa

### DYNAMIC PERINATAL MONITOR

- Program Uterine Activity
  - » Control frequency, duration and intensity of contractions
  - » Select resting tone
  - » Generate additional contractions during the scenario
- Program Fetal Heart Rate
  - » FHR Baseline
  - » Select variability
  - » Control episodic, periodic, and variable changes
  - » Generate FHR patterns at any time
  - » Listen to FHR in the External Fetal Monitoring or the Fetal Spinal Electrode Mode
  - » Review up to 2 hours of recorded fetal tracings
  - » Save/print fetal tracings for debriefing

### TWO BIRTHING FETUSES

- Vertex fetus has a smooth head (no connection port) making vacuum deliveries more realistic
- Breech fetus has a smooth bottom (no connection port) for maximum realism
- Head with fontanelles and sutures
- Head cover for forceps or vacuum augmentation during delivery

- Head flexes as it moves through birth canal
- Suction mouth
- Realistic landmarks
- Jointed arms and legs useful during dystocia and breech exercises
- Umbilicus and placenta; attach placenta to uterine wall, placenta includes retained fragments
- Fetuses are attached to delivery mechanism and can be released wirelessly
- Can be manipulated by the student and either released or retained wirelessly
- Fetal condition and release by command from wireless tablet PC
- Programmable fetal heart sounds before, during and following the delivery

### MATERNAL AIRWAY

- Program tongue edema and pharyngeal swelling
- Multiple upper airway sounds synchronized with breathing
- Nasal or oral intubation
- Sensors detect depth of intubation
- Head tilt/ chin lift
- Jaw thrust
- Simulated suctioning techniques can be practiced
- Bag-Valve-Mask Ventilation
- Placement of conventional airway adjuncts
- Endotracheal intubation using conventional ETTs
- Sellick maneuver brings vocal cords into view

### MATERNAL BREATHING

- Automatic chest rise is synchronized with respiratory patterns
- Independent left or right lung sounds synchronized with breathing
- Ventilation may be assisted using BVM, ETT, or LMA
- Ventilations are measured and logged
- Chest compressions generate palpable blood pressure wave form and ECG artifacts
- Detection and logging of ventilations and compressions
- Simulated spontaneous breathing Variable respiratory rates an inspiratory/expiratory ratios
- Bilateral chest rise and fall
- Normal and abnormal breath sounds
- Anterior auscultation sites

### MATERNAL CARDIAC

- ECGs are generated in real time with physiologic variations never repeating textbook patterns

# NOELLE | *Smart Delivery Neonates*

- Heart sounds may be auscultated and are synchronized with ECG
- Optional automatic mode allows to show virtual dynamic ECG rhythms for each of the 12 leads

## MATERNAL CIRCULATION

- Measure blood pressure by palpation or auscultation
- Use real BP cuff rather than a "virtual" cuff to measure blood pressure
- Korotkoff sounds audible between systolic and diastolic pressures
- Oxygen saturation detected using real monitors rather than a "virtual" value
- Pulse sites synchronized with BP and heart rate
- Bilateral IV arms with fill/drain sites
- SubQ and IM injection sites
- Chest compressions are measured and logged
- ECG monitoring using real devices
- Defibrillate, cardiovert and pace using real devices
- Multiple heart sounds
- ECG rhythms are generated in real time
- Heart sounds synchronized with ECG
- Pacing may be practiced anteriorly to avoid having to roll the patient during delivery
- Bilateral carotid, radial, and brachial pulses synchronized with ECG
- Pulses vary with blood pressure, are continuous and synchronized with the ECG even during a paced rhythm

## MATERNAL NEURAL RESPONSES

- Programmable blinking, dilation and eye1 response to light
- Programmable duration and intensity of convulsions

## MATERNAL SPEECH

- Prerecorded sounds
- Standard two way wireless streaming audio

## WIRELESS STREAMING AUDIO

- Create and store vocal responses in any language
- Instructor can simulate patient's voice and listen to caregivers conversation wirelessly
- Be the voice of the simulator and hear responses at distances up to 50 meters

## VITAL SIGNS MONITOR

- Controlled via wireless tablet PC
- Both maternal vital signs and fetal heart tones

- Use selected configuration or create your own configuration to mimic the monitors used in your facility
- Customize alarms
- Easy to operate and control
- Change maternal or fetal condition during the scenario
- Share images such as ultrasounds,
- CT scans, lab results
- Touchscreen control
- Both maternal vital signs and FHTs can be seen at the same time
- Monitor can be configured by the instructor to suit the scenario
- Display up to 8 numerical parameters
- Display up to 5 real time waveforms in normal mode
- Display up to 12 real time waveforms in advanced mode

## MATERNAL ARTICULATION & MOVEMENT

- Improved hip articulation for McRoberts maneuver
- Seizure/convulsions
- Tremors
- Able to position in knees/elbows position useful during shoulder dystocia
- Realistic rotation of the shoulder and hip joints
- Legs bend at the knees
- Arms bend at the elbow
- Supine or semi-recumbent positions
- Roll to left lateral position
- Put legs in stirrups

## OTHER

- Fill bladder and perform Foley catheterization
- Remains fully functional even while in transit
- Soft carrying case
- Transporting Roller Cart *extra

## USER INTERFACE

- Sensors track student actions
- Changes in condition and care provided are time stamped and logged
- View the actions of up to 6 care providers using a responsive menu or write narrative
- Generate and share diagnostic lab results
- File sharing
- Links with optional recording and debriefing system integrating the event log with cameras and patient monitor
- Supplied with wireless tablet PC
- 49 preprogrammed scenarios which can be modified by the instructor even during the scenario
- Create your own scenarios - add/edit

- Change simulator's condition during the scenario
- Optional automatic mode/physiologic model
- Optional integrated three camera recording and debriefing solution

## NEWBORN
### ADVANCED NEWBORN

- Choice of 30 week Premie or 40 week term
- Term newborn 50th percentile in size
- Wireless and tetherless so that simulator can be controlled and intervention documented even in transit
- Supplied with tablet PC for ease of movement

### NEWBORN AIRWAY

- Realistic airway
- BVM/ET/LMA
- Sellick maneuver
- Multiple upper airway sounds synchronized with breathing
- Oral or nasal intubation
- Sensors detect depth of intubation
- Suctioning techniques can be practiced
- Program blockage of right lung, left lung and both lungs
- Head tilt/chin lift
- Jaw thrust
- Realistic chest rise and fall
- Newborn Breathing
- Automatic chest rise synchronized with respiratory patterns
- Select independent left or right lung sounds synchronized with breathing
- Assisted ventilation with conventional devices
- Ventilations are measured and logged
- Chest compressions generate palpable blood pressure wave form, and ECG artifacts
- Detect and log ventilations and compressions
- Simulated spontaneous breathing
- Variable respiratory rates and inspiratory/expiratory ratios
- Bilateral and unilateral chest rise and fall
- Respiratory sounds include both normal lungs as well as stridor and grunting
- Anterior auscultation sites

### NEWBORN CARDIAC

- ECGs generated in real time with physiologic variations in rhythm never repeating textbook patterns
- Multiple heart sounds, rates and rhythms are synchronized with ECG

# NOELLE | *The Noelle® Simulators*

- Optional automatic mode enables view of dynamic ECG rhythms shown on any of 12 leads

## NEWBORN CIRCULATION

- Color responds to hypoxic events and interventions
- Programmable to comply with current or future CPR standards
- Measure blood pressure
- Virtual oxygen saturation
- Fontanelle, brachial and umbilical pulses are synchronized with heart rate and ECG
- IV arm with fill/drain sites
- SubQ and IM injection sites
- Chest compressions measured and logged
- ECG monitoring using real devices
- Multiple heart sounds
- ECGs are generated in real time
- Heart sounds synchronized with ECG
- ECG rhythm monitoring
- Umbilicus may be used for "cut-down" procedure
- Umbilicus has pulse and patent arteries and vein
- Pulse strength varies with BP
  Intraosseous access

## NEWBORN SPEECH

- Vigorous cry is synchronized with breathing

## NEWBORN VITAL SIGNS MONITOR

- Controlled via wireless tablet PC
- Display neonatal vital signs in real time
- Use selected configuration or create your own configuration to mimic the monitors used at your facility
- Customize alarms
- Easy to operate and control
- Modify newborn's condition during the scenario
- Share images such as ultrasounds, CT scan, lab results
- Newborn heart tones
- Touchscreen control
- Display up to 8 numeric values
- Select up to 5 real time waveforms in normal mode
- Select up to 12 real time waveforms in advanced mode
- Display pre-ductal and post-ductal oxygen saturation
- Display blood glucose level

## NEWBORN ARTICULATION & MOVEMENT

- Seizure/convulsions**
- Programmable arm movement and posture responds to hypoxic events and interventions**
- Realistic rotation of the shoulder/hip joints
- Legs bend at the knees
- Arms bend at the elbow
- Remains fully functional even in transit

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### NOELLE

**S574.100**

### NOELLE WITH NEWBORN HAL

**S575.100**

### NOELLE WITH PREMIE HAL

**S576.100**

Patented; other patents pending

### OPTIONAL ADD-ONS*

### D/C VIRTUAL MONITOR ADDITIONAL 12" TOUCHSCREEN TABLET TO DISPLAY VITAL SIGNS

**S575.100.002**

### AUTOMATIC PHYSIOLOGIC CONTROL MATERNAL AUTOMATIC MODE

**S575.100.600**

- Interactive maternal/fetal/neonatal model
- Intuitive interface and automaticity makes simulation easy
- Links maternal conditions with that of her fetus; fetal condition changes in real time on monitor
- Fetal conditions determine newborn's initial APGAR score
- Intuitive interface and automaticity makes simulation easy
- Vital signs are generated in real time
- Drug library with medications
- Use of medications change conditions in real time mimicking real clinical situations

### AUTOMATIC DRUG RECOGNITION SYSTEM MATERNAL DRUG RECOGNITION SYSTEM (INCLUDES AUTOMATIC MODE)

**S575.100.400R**

- Identifies drug type and volume injected into veins of the right hand and forearm
- Supplied with 20 syringes having wireless tags
- Use drugs from library or choose to model other drugs using software template
- Physiologic models update simulated vital signs monitors
- Additional packs of 20 syringes with tags available
- Supplied with easily replaceable veins

**Feature not available with Premie HAL

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Skin tones available at no extra charge

Light    Medium    Dark

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