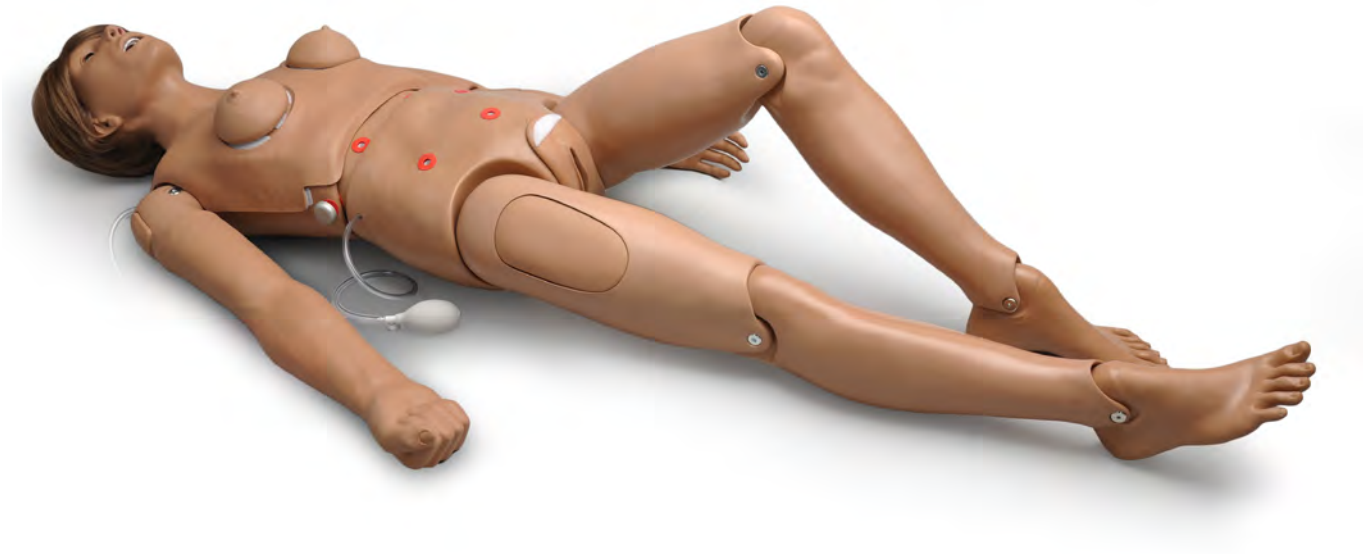
Gaumard®
Simulators for Health Care Education

S222 & S222.250 & S222.100

Clinical Chloe™ Patient Simulator

User Guide



Clinical Chloe is an interactive educational system developed to assist a certified instructor. It is not a substitute for a comprehensive understanding of the subject matter and not intended for clinical decision making.

User Guide 17.11.1

www.gaumard.com

Contents

End User License Agreement

This is a legal agreement between you, the end user, and Gaumard® scientific company, inc. ("Gaumard"). This software is protected by copyright laws and remains the sole property of Gaumard. By installing the OMNI (the "software") media, you agree to be bound by the terms of this agreement. If you do not agree to the terms of this agreement, promptly return the uninstalled media and accompanying items to Gaumard at the address indicated below.

1. Grant of License: Gaumard hereby grants to you (an individual or institution) the right to install and activate the software on one computer for use with one interactive patient simulator system. The software may also be installed on any number of other computers at the same institution so that students may access the learning resources. One copy of the software may be made for backup purposes. You may not network this software, or allow multiple users unless you purchased a multi-user workstation license. Sharing this software with other individuals or allowing other individuals to view the contents of this software is in violation of this license.

2. Copyright: The software is owned by Gaumard and protected by United States copyright laws and international treaty provisions. Therefore, you must treat this software like any other copyrighted material. You may not make this software or copies thereof available in any manner or form or use, copy or transfer the software, in whole or in part, except as provided herein.

3. Other Restrictions: You may not rent or lease this software to any other party. You may not alter, merge, modify, adapt, reverse engineer, decompile or disassemble the software, or disclose the contents of this software to any other party.

4. Electronic Transmission of Software: If you received the software by electronic transmission or by internet delivery, by installation of the software, you acknowledge that you have read and understand this license agreement and agree to be bound by its terms and conditions.

5. Term of Agreement: The term of this agreement and the license granted to you pursuant hereto shall commence upon installation of this software. This agreement and the license granted herein may otherwise be terminated by Gaumard in the event that you are in breach of any provision of this agreement. In the event of termination, you agree to immediately return this software, accompanying items, and any copies thereof to Gaumard.

6. Limited Warranty:
(A) The cd-rom media (the "media") which contains this software is warranted, for a period of 30 days from the date of purchase, to be free from defects in material and workmanship. Electronic transmission is warranted to be free from defects at the moment of transmission. Your sole and exclusive remedy, and Gaumard's sole liability, is to replace the defective media or to repeat the electronic transmission provided that you notify Gaumard in writing of such defect or defective transmission and return the defective media, if any, during the 30-day warranty period.

(B) Except and to the extent expressly provided in paragraph (a), the software and accompanying written materials are provided on an "as is" basis, without any warranties of any kind, including, but not limited to, any implied warranties of merchantability or fitness for any particular purpose. No oral or written information or advice given by Gaumard, its dealers, distributors, agents or employees shall create a warranty or in any way increase the scope of this warranty, and you may not rely on any such information or advice. Gaumard does not warrant, guarantee, or make any representations regarding the use or the results of use, of the software or written materials in terms of correctness, accuracy, reliability, currentness, or otherwise, and the entire risk as to the results and performance of the software is assumed by you. If the software or written materials are defective, you and not Gaumard or its dealers, distributors, agents, or employees, assume the entire cost of all necessary servicing, repair or correction other than expressly described above.

(C) Neither Gaumard nor anyone else who has been involved in the creation, production or delivery of this product shall be liable for any direct, indirect, consequential or incidental damages (including damages for loss of business profits, business interruption, loss of business information, and the like) arising out of the use or inability to use such product or related to this agreement even if Gaumard has been advised of the possibility of such damages. Gaumard shall not be liable to you for any indirect, special, incidental, or consequential damages or lost profits arising out of or related to this agreement or your use of the software and/or the related documentation, even if Gaumard has been advised of the possibility of such damages. In no event shall Gaumard's liability here under, if any, exceed the purchase price paid by you for the software.

All rights not expressly granted in this license agreement are reserved by Gaumard.

ACKNOWLEDGMENT

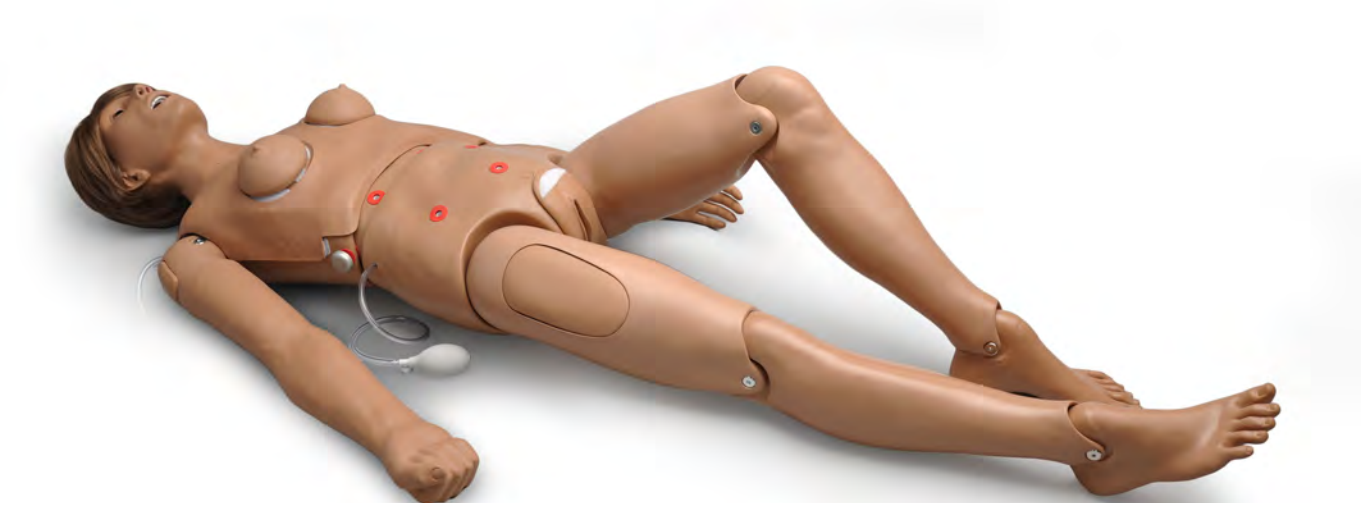
By installation of this software, you acknowledge that you have read and understand the foregoing and that you agree to be bound by its terms and conditions. You also agree that this agreement is the complete and exclusive statement of agreement between the parties and supersedes all proposed or prior agreements, oral or written, and any other communications between the parties relating to the license described herein.

1. Introduction

1.1 Specifications

Clinical Chloe

- Weight: 40 lbs (18.1 kg)
- Length: 5’5” inches (165 cm)



1.2 Care and Maintenance

WARNING: Damage caused by misuse is not covered by your warranty. It is critical to understand and comply with the following guidelines.

WARNING: The lubricants and other accessories provided are for use with the accompanying patient simulator only. The lubricants and other accessories are not suitable for human use or medical treatment/ diagnosis and should never be used for such purposes.

General

- Ball point pens, ink, and markers permanently stain the skin.
- Do not wrap this or any other Gaumard product in newsprint.
- Marks made with ballpoint pens, ink or marker cannot be removed.
- Replacement parts are available from Gaumard Scientific or from your Distributor

IV Arm

- Only use Gaumard's provided simulated blood. Any other simulated blood containing sugar or any additive may cause blockage and/or interruption of the vasculature system.
- The use of needles larger than 22 gauge will reduce the lifetime of the lower arms' skin and veins.
- Always purge with clean water and then drain the vein reservoirs at the end of the simulation session. Doing so will retard the formation of mold and prevent clogging of the system.
- We recommend flushing veins with 70:30 solution of clean water to isopropyl alcohol (IPA) at least once per month to prolong the life of the vasculature.
- When the arm skin and/or veins require replacement, refer to the "Consumables" section of this guide. For more information regarding the replacement of veins and other consumable items please contact customer service.

WARNING: Vein tubing contains latex which may cause allergic reactions. Users allergic or sensitive to latex should avoid contact. Discontinue use of this product and seek medical attention if an allergic reaction occurs.

Operating Conditions

- The simulator will only power on when connected to the AC power supply.
- Operating temperature: 50°-95° F (10°-35° C)
- Humidity: 5%-95% (non-condensing)

Storage Conditions

- Keep simulator stored in the bag and box provided:
  - Storage temperature: 32°-113° F (0°-45° C)
  - Humidity: 40%-60% (non-condensing)
  - Do not stack or store heavy materials on top of the carton box

WARNING: To avoid damage to the simulator, please store and ship it in the clear poly bag provided.

Procedures

- Do not attempt to intubate without lubricating the airway adjunct with **mineral oil** lubricant. Failure to lubricate the device will make intubation very difficult and is likely to result in damage to the simulator.
- When simulating drug administration via endotracheal tube, providers must use an empty syringe. Passing liquids into the trachea or esophagus may cause internal damage.
- Mouth to mouth resuscitation without a barrier device is not recommended, as it will contaminate the airway.
- Treat the simulator with the same precautions that would be used with a **real** patient.

Cleaning

- The simulator should be cleaned with a cloth dampened with diluted liquid dish washing soap.
- Remove all traces of any lubricant.
- Do not clean with harsh abrasives.
- Do not use povidone iodine on the simulator.
- Dry thoroughly.
- The simulator is “splash-proof” but not water-proof. Do not submerge or allow water to enter the interior of the simulator.

Stoma Care

- Always handle the stomas with clean hands.
- Do not palpate with fingernails.
- Do not clean with alcohol or aggressive solvents.
- Do not pack any sharp objects with the stomas.
- Do not press the stomas against soiled surfaces, ink, or newsprint. The stoma material is absorbent.
- Prevent items from resting or pressing against the stomas as indentations will form on the pressure points. The stomas may return to the normal shape after the pressure is relieved.
- Place baby powder on the stoma surface to reduce tackiness. This can be reapplied as needed.
- Clean the stomas using a mild solution of soap and water.
- Apply baby powder to return the surface to a skin-like feel and appearance.

2. Getting Started

2.1 Overview

Disclaimer: The section below describes all possible features in the Clinical Chloe™ simulator. The content of this information is subject to change without prior notice. Please contact Gaumard® Scientific for the most current information.

Clinical Chloe™ is an advanced multipurpose simulator equipped with the following features:

General Patient Care

- Bathing and bandaging activity
- Interchangeable male and female organs (Both Included)
- Eyes open and close (One pupil is dilated)
- Realistic eyes for ophthalmic exercises
- Realistic urethral passage and bladder for catheterization exercises
- Upper and lower dentures for oral hygiene
- Simulated ear canal for otic drops and irrigation
- Transverse colostomy, ileostomy, and suprapubic stomas, to practice irrigation
- Opening for gastronomy
- Enema administration capability
- Stylish wig for haircare exercises and surgical draping
- Set of two decubitus ulcers
- Ulcerated foot (optional for S222)
- Manual palpable pulses
- Blood pressure arm with real-time feedback (optional for S222)

Articulating

- Head and jaw
- Knees and ankles

Injection Training

- Intramuscular injection sites in arm, thighs, and buttock
- Advanced training arm and hand for IV, IM, and sub-Q techniques

Heart and Lung Sounds

- Site Specific Heart and Lung sounds with Virtual Stethoscope (optional for S222)

Breast Palpation

- Interchangeable male and female breast inserts
- Breast palpation capability with 7 abnormal breasts (S222.100 only)

CPR

- Practice CPR
- Practice BVM with realistic chest rise
- Realistic heart, lungs, ribs, stomach and liver for unparalleled CPR performance
- Omni™ Code Blue® Pack included to monitor compressions and airway ventilations
- OMNI 2 available for the S222.250 or the purchase of an OMNI Link

Airway

- Anatomically accurate airway
- Tracheotomy placement
- Tracheotomy intubation with replaceable trachea
- Trachea, bronchi, and lungs enable assessment of airway management skills
- Tongue, epiglottis, vocal chords and esophagus look and feel real
- Nasal and oral tube placement
- NG and OG tube feeding and gastric suction

GYN Training

- S222.100 Only
  - › Bi-manual pelvic examination
  - › Palpation of normal and pregnant uteri
  - › Vaginal examination including insertion of speculum
  - › Visual recognition of normal and abnormal cervices
  - › Uterine sounding
- Vaginal douching and pap smear exercises with realistic vagina and cervix (both S222 and S222.100)

Options

- Amputation stump

2.2 Terminology

Facilitator

The person conducting the simulation; an instructor or lab staff member.

Provider

A person participating in the simulation as a healthcare provider.

2.3 Package

Check List

- Male genitalia
- Male breasts
- Female breasts (7 abnormal breasts for S222.100)
- Ostomy
- Neck brace
- Stoppers
- IV Arm Kit
- Trachea tape
- Power supply
- OMNI controller, ethernet cable, USB cable, CPR CD, OMNI quick guide and user guide

3. Equipment Setup

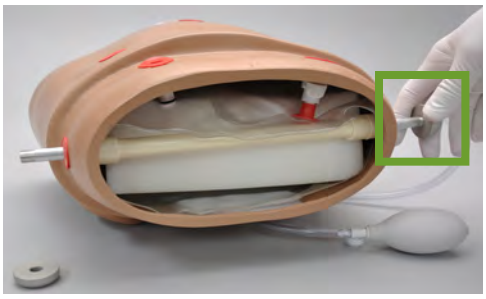
3.1 Overview

The simulator is shipped partially assembled. Perform the following steps as part of the first installation procedure.

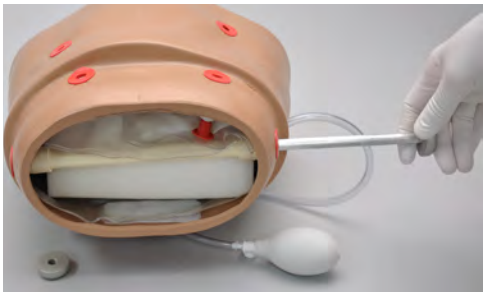
Simulator Assembly

1. Remove the support from the lower torso.

2. Within the lower half of the simulator, a rod passing through the midsection connects the upper and lower torso. To assemble the internal components of the simulator, unscrew one knob at the end of the rod.

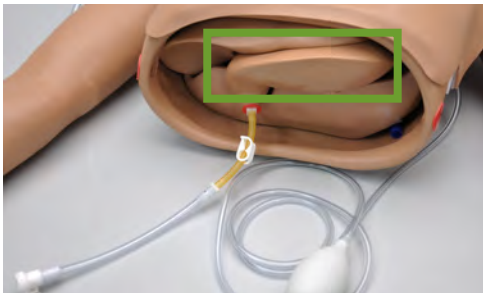


3. Pull from the side of the rod where the second knob is attached.

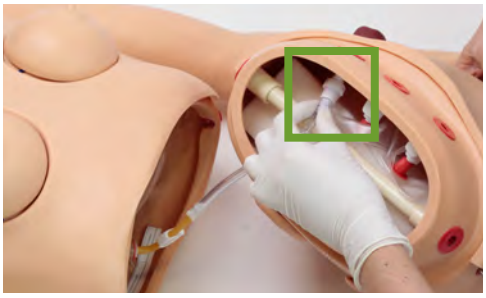


4. Remove the rod from within the white guide tube and set aside.

5. Locate the stomach reservior positioned in the upper torso.

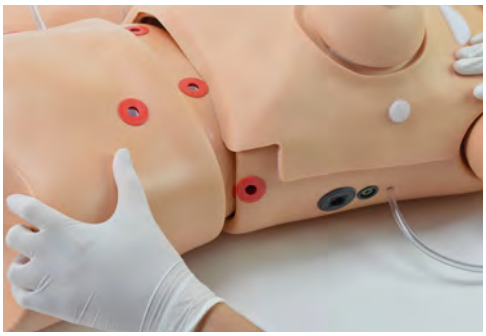


6. Connect the tube from the stomach reservior to the white port in the lower torso.

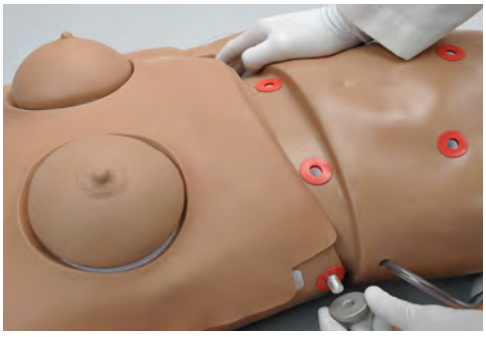


7. Place the support back into the lower torso.

8. Ease the lower torso into the upper torso, being careful not to disengage the stomach reservior.



9. Line up the holes and slide the waist rod through the white guide tube. Replace the waist knob and fasten firmly.

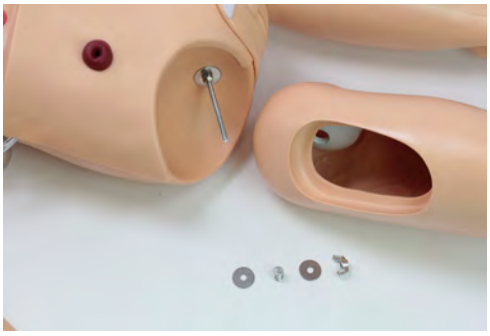


To disassemble the simulator for transportation or cleaning, reverse this procedure.

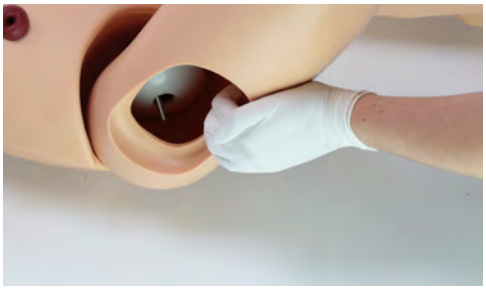
Leg Assembly

1. Place simulator on a flat surface.

2. Remove the wing nuts, washer, and springs from the bolts on the hips.



3. Remove the IM pad from each leg and slide the bolt through the orifice in the leg.



4. Reach through the IM site and assemble the fasteners onto the hip bolt in this order: washer, spring, washer, and wing nut.

5. Tighten the wing nut until the spring is compressed slightly.

6. Place the IM pad in the leg.

OMNI Connection

1. Connect the blue communication cable to Chloe's left side

2. Connect the power supply to the power jack

Always operate Super Clinical Chloe with the power supply connected.

After the startup screen, OMNI will proceed to the main screen.

WARNING: Do not connect the Blood Pressure Arm or Omni to a computer, LAN network or unauthorized diagnostic equipment using the communication cable (Ethernet cable). Doing so will cause serious damage to the equipment.

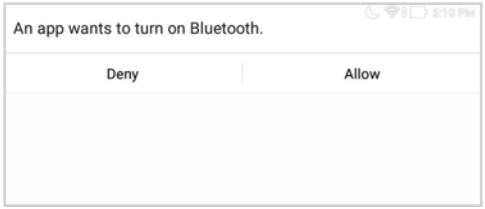
OMNI® 2 Connection (S222.250)

OMNI® 2 controls Chloe's responses with the touch of a button. The tablet operates Chloe wirelessly.

Chloe can be operated using a wired connection. Please refer to the OMNI® 2 user guide to set up a wired connection.

Follow the steps below to connect wirelessly to OMNI® 2:

1. Turn on OMNI® 2 by pressing and holding the ON button on the right side of the tablet.
2. Select "Allow" to turn on Bluetooth for the tablet.

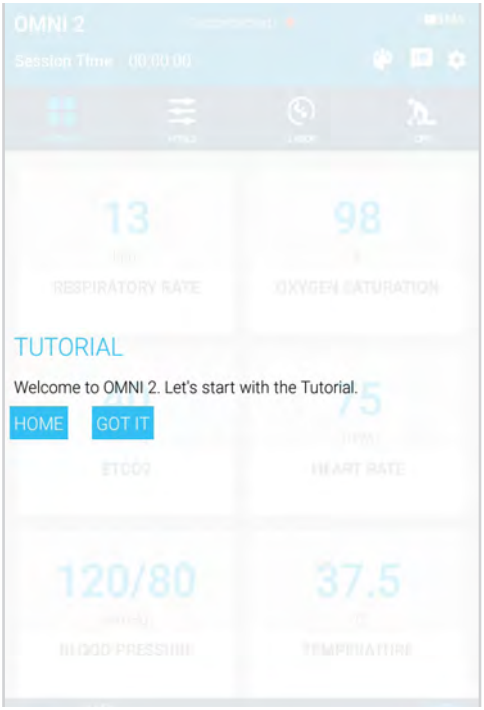


3. A startup screen is shown while OMNI® 2 is detecting the simulator features.

4. Follow the on-screen tutorial for a brief overview of the features of OMNI® 2.

5. Move onto the next steps in the Tutorial by selecting “GOT IT”.

6. Exit the Tutorial at any time by selecting “HOME”.



> **Please complete the tutorial once or it will continue to appear at start-up.**

After the tutorial, OMNI® 2 will automatically proceed to the Favorites page and establish a connection to Super Chloe.

WARNING: Do not connect Chloe or OMNI® 2 to a computer. LAN network or unathorized diagnostic equipment. Doing so will cause serious damage to the equipment.

4. Working with Clinical Chloe

4.1 Airway

Nasal and Oral Intubation

The simulators's airway can be intubated through the left nasal opening, the trachea, and the mouth using LMA or endotracheal tubes.

Procedure	Recommended Device Size
Intubation (Blade size)	Miller 4 or MAC 3.5
LMA	Size 4
Nasal Intubation	8 Fr catheter
Oral Intubation	ETT 7.0 cuffed or 7.5 no cuff

> **WARNING: Always lubricate tubing prior to performing any nasal or oral intubation.**

Tracheostomy Care

The simulator is supplied with a tracheostomy opening. Pierce the replaceable trachea and insert a tracheostomy tube. Reseal the trachea with the tape provided after each exercise.

Surgical Trachea Repair

1. Lift the chest skin of the simulator to reveal the chest cavity.

2. Locate the trachea.

3. Remove the tape enclosing the trachea.

4. Use the provided tape to replace the pierced tape and re-seal the trachea.

5. Lay the cehst skin over the torso and reattach with Velcro.

4.2 Artificial Respiration

Ventilation

Use a normal size adult BVM which will seal around the mouth and nose. The ribs have normal anatomic landmarks and the lungs expand normally permitting realistic chest rise.

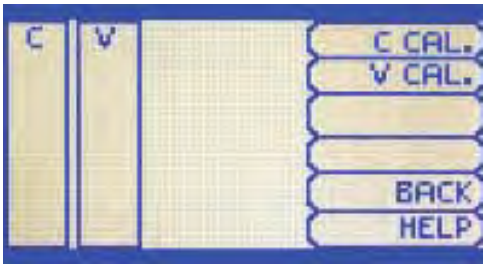
WARNING: Do not perform mouth to mouth ventilation. Doing so may lead to molding of the airway. The airway itself cannot be sanitized or cleaned.

Ventilations are measured and logged. It is recommended to calibrate the ventilations before performing ventilations.

Ventilation Calibration

1. Press the button that reads “CALIB”

2. Select “V CAL.”



3. Press “START”

4. When OMNI® is ready to calibrate, it will display VENTILATE. Follow the cues on the screen to perform one ventilation at a time, until finished.

5. Perform a total of 5 ventilations

6. Press “SAVE” to store the calibration

4.3 Circulation

Chest Compressions

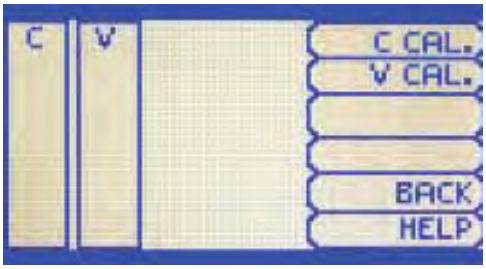
Chest compressions are measured and logged, showing the instructor exactly how facilitators are performing.

It is recommended to calibrate the compressions before performing compressions.

Compression Calibration

1. Press the button that reads “CALIB”

2. Select “C CAL.”



3. Press “START”

4. When OMNI® is ready to calibrate, it will display COMPRESS. Follow the cues on the screen to perform one compress at a time, until finished.

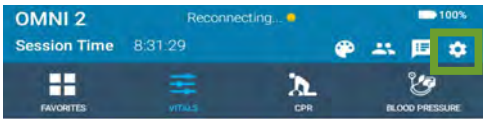
5. Perform a total of 5 ventilations

6. Press “SAVE” to store the calibration

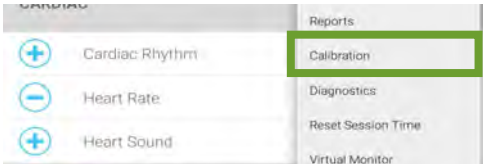
Chest Compression Calibration With OMNI® 2

1. Make sure your simulator is connected to OMNI 2

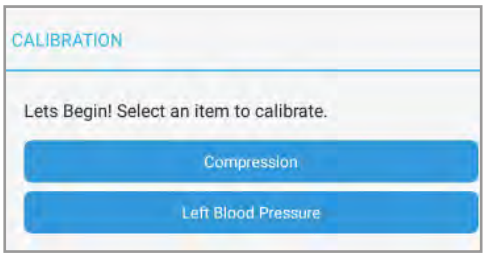
2. Tap the gear icon on the upper-right corner of the screen.



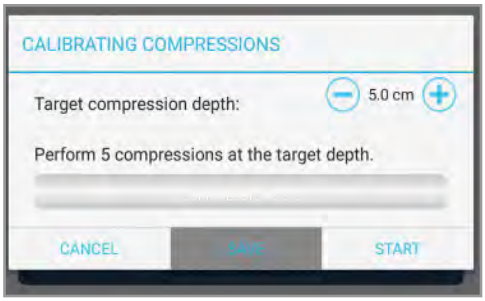
3. Select “Calibration”



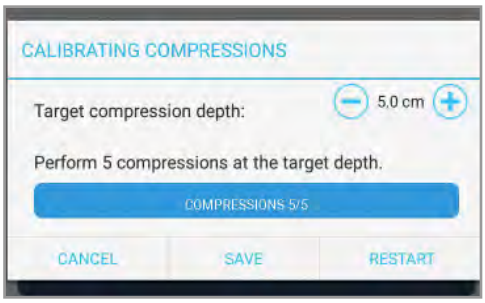
4. Select “Compression”



5. Press START and complete 5 chest compressions.



6. Press “SAVE” when finished



Bilateral Pulses

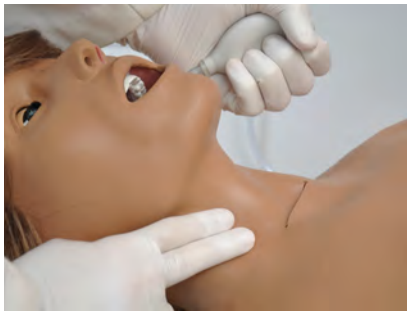
The simulator’s palpable pulses (bilateral carotid and right radial) can be simulated by pumping the squeeze bulb.

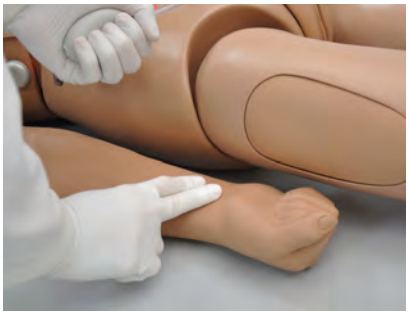
To activate the pulses, connect the squeeze bulb; follow the steps below:

1. Remove the red cap from Clinical Chloe’s left side.

2. Connect the squeeze bulb to the port.

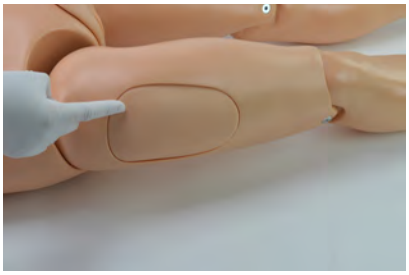
3. Palpate the pulses





Injection Site

Simulated intramuscular injection sites are located on the deltoids, quadriceps, and buttocks.



IV Arm

The right arm is a training tool for infusion, blood collection, intravenous injection, intramuscular injection, TB screening and subcutaneous injection exercises.

WARNING: Do not attempt to fill IV system without the drain connector in place.

Always leave the drain port connected when injecting fluids into the system.

Use only Gaumard's provided simulated blood. Any other simulated blood brand containing sugar or any additive may cause blockage and/or interruption of the vasculature.

Always flush the IV system with distilled water at the end of every simulation.

Features of the IV Arm

- An intramuscular injection site in the deltoid area
- Simulated cephalic, basilic, antecubital, radial and ulnar veins
- Subcutaneous injection areas on the volar side of the forearm and the lateral side of the upper arm
- Two veins in the dorsum of the hand for additional intravenous training techniques

IV Arm Package

The arm is supplied with:

- Synthetic blood concentrate
- Spare arm skin
- Blood dispensing bag
- Metal stand
- Mineral oil
- Baby powder
- Syringe
- Funnel

Instructions for Use

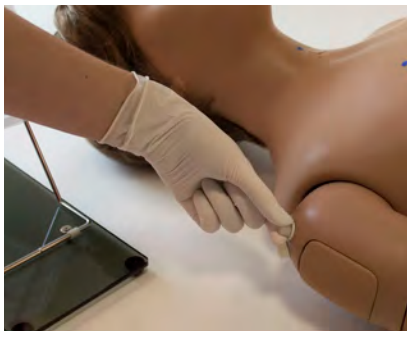
Use the training arm and hand connected to the blood-dispensing bag.

To simulate a clenched fist or tourniquet, apply pressure to the system using the squeeze bulb connected to the dispensing bag. Release the pressure to simulate collapsed veins. Use the squeeze bulb to change the palpability of the veins.

Use cannulas/needles smaller than 22 gauge to extend the life of the venous structure.

1. Hang the blood-dispensing bag on the stand.

2. Remove the IV caps on the shoulder.



3. Connect the fill and drainage tubing to the shoulder.

The fill and drainage tubing does not correspond to a specific port.

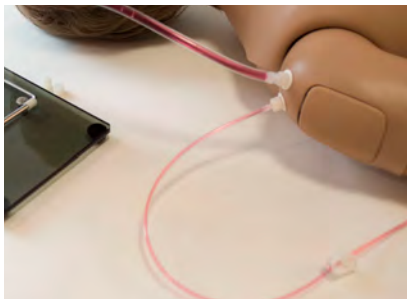
4. Attach the filling tube from the right arm to the bottom port of the blood-dispensing bag.

5. Close the adjustable clamp of the draining tube located near the right shoulder.

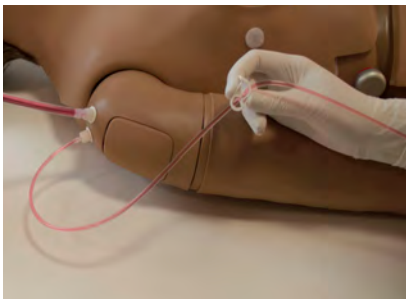
6. Place the drainage tube inside a container.

7. Add water or artificial blood to the blood-dispensing bag using the provided funnel or large syringe.

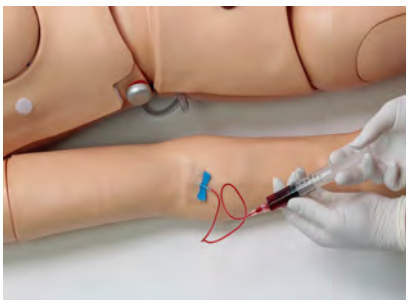
8. Open the adjustable clamp to allow fluid to flow through the system and into the drainage container.



9. Close the adjustable clamp of the drainage tube when there are no more air bubbles.



10. Perform intravenous, subcutaneous, and intramuscular procedures.



11. To vary the blood pressure in the vasculature of the arm, attach the tube with squeeze bulb to the upper port of the blood-dispensing bag and depress the squeeze bulb.

Draining the Venous System

Drain the venous system after every scenario.

1. Unclamp the drainage tube

2. Attach the squeeze bulb to the blood dispensing bag

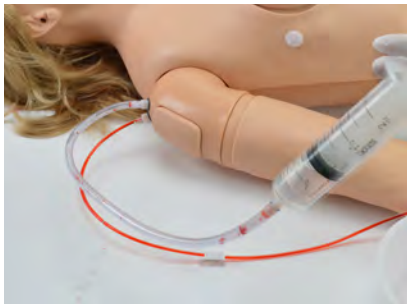
3. Use the squeeze bulb to push the fluid out of the venous system

4. Fill the dispensing bag with 30:70 mix of isopropyl alcohol and use the squeeze bulb to flush the venous system

5. Disconnect the fill and drain hoses from the arm

6. Connect a filling syringe and drain hose to the shoulder

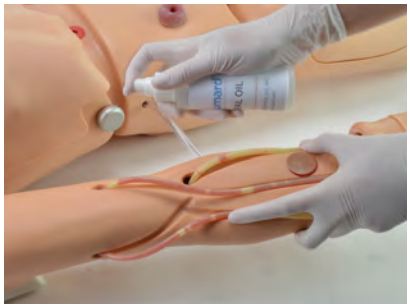
7. Purge the IV arm of any remaining fluid



Replacing the Skin of the Patient Training Arm

1. Gently roll down the outer skin from the top of the arm.

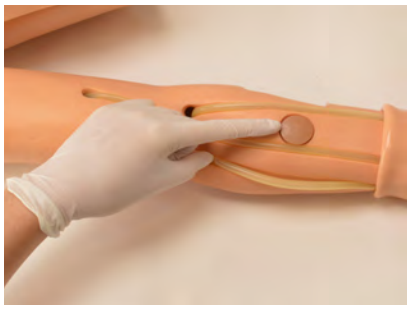
2. Apply a small amount of talcum powder or silicone oil to the arm.

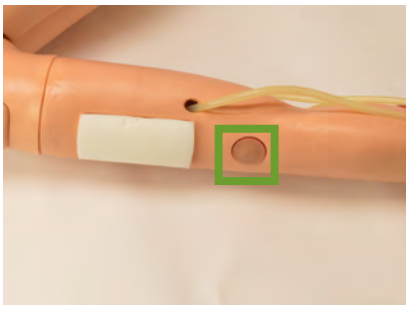


3. Insert the new skin onto the arm at the fist and pull up into place.

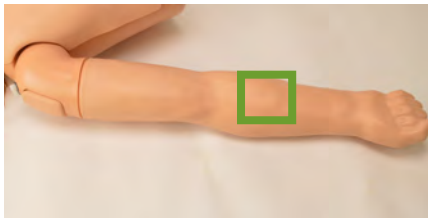
TB Screening Sites

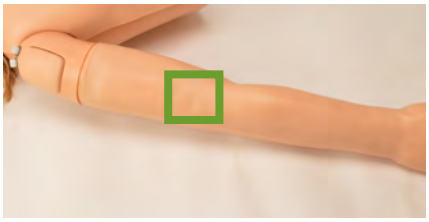
There are 2 TB sites on the arm that may be utilized for TB screening.





Perform the TB tests in the sites highlighted below.





4.4 Systemic

Teeth

The simulator is supplied with normal size teeth and tongue. The upper and lower dentures are removable.

> **The dentures are attached with Velcro and no force is required for their removal.**

1. To remove the teeth, gently insert one finger into the upper or lower jaw and tap lightly. Dentures will immediately snap out.

2. To reinsert, gently hold lower or upper lip and replace dentures.

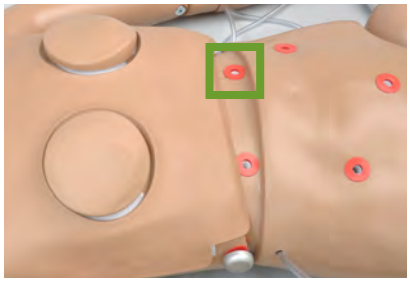
> **WARNING: Care must be taken not to damage teeth while placing an endotracheal tube using a conventional laryngoscope.**

Ears, Nose, and Throat

> **WARNING: Always use lubricant prior to the introduction of a Levin tube or any other invasive device.**

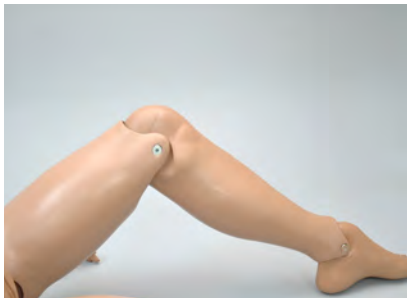
- Left ear: the interior of the ear contains a simulated ear canal with a capacity of up to 5 ml, to practice syringing exercises.

- Left Nasal/oral openings: both are connected to the stomach reservoir/tank. Use a #10 Levin tube to demonstrate tube feeding and gastric suction.



- A gastric reservoir (capacity: 850 ml) is provided, with an opening for gastrostomy.

Range of Simulated Movement



The joints are strong and their movements are lifelike and realistic. The simulator bends at the neck, waist, knees and ankles and the jaw articulates.

S222 has articulating elbows and wrists.

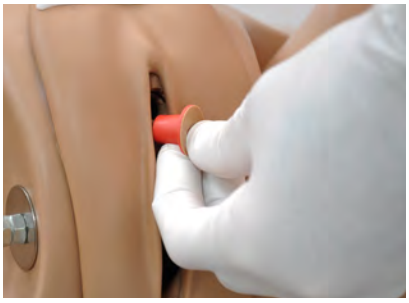
Urinary Catheterization

The simulator includes a fitted female genitalia and a male genitalia attachment. The attachment is a reproduction of a male external genitalia with scrotum.

Procedure	Recommended Device Size	Capacity
Catheterization	18 Fr	1800 mL

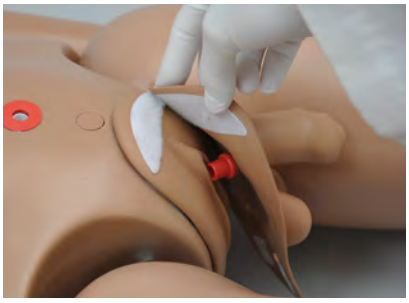
Assembly Instructions

1. To attach the male genitalia, remove the red adaptor and set it aside.



> **Do not throw the red adaptor away, as it is necessary to perform female catheterization exercises.**

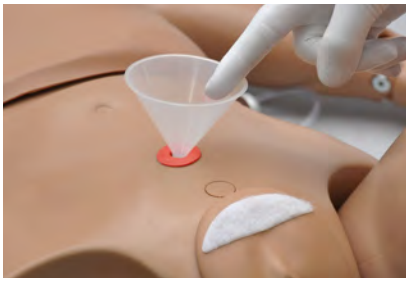
2. Slide the tube attached to the male genitalia, into the opening of the urethra on the simulator and fasten the Velcro.



Male Catheterization

1. Follow the assembly steps above to attach the male genitalia

2. Insert a funnel into the suprapubic port and fill the bladder with up to 1800 mL of fluid



3. Once filled, insert the urethra plug into the suprapubic port

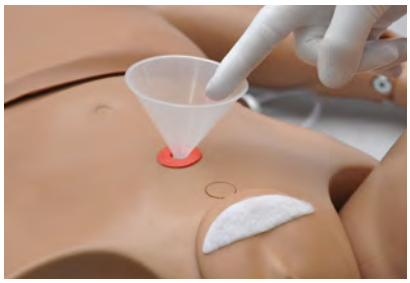
4. Lubricate the catheter with mineral oil

5. Insert a size **18 Fr** catheter

6. Use the squeeze bulb on the right side of the simulator to pressurize the bladder and increase the flow

Female Catheterization

1. Insert a funnel into the suprapubic port and fill the bladder with up to 1800 mL of fluid



2. Once filled, insert the urethra plug into the suprapubic port

3. Lubricate the catheter with mineral oil

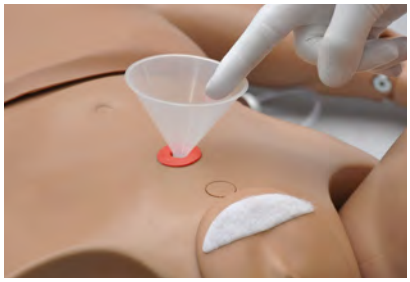
4. Insert a size **18 Fr** catheter

5. Use the squeeze bulb on the right side of the simulator to pressurize the bladder and increase the flow

Draining the Bladder

1. With the catheter in place, allow the remaining fluid to drain out of the bladder

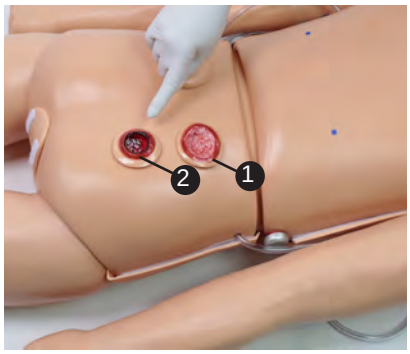
2. Fill the bladder with a 30:70 mix of isopropyl alcohol



3. Catheterize the simulator to drain the contents of the bladder

Decubitus Ulcers

The simulator is supplied with two anatomically accurate ulcers.



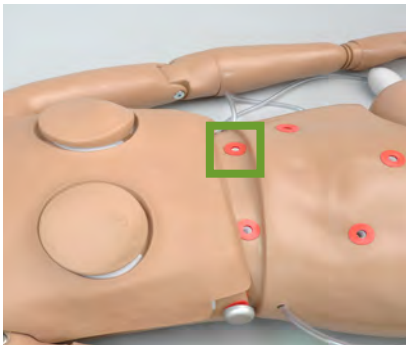
1. Initial stage of ulceration
2. Suppuration or pus/deeply infected stage.

Ulcerated Foot

Diagnose and treat ulcers on the left foot of the simulator. This feature is optional for the S222.

Stomach and Liver

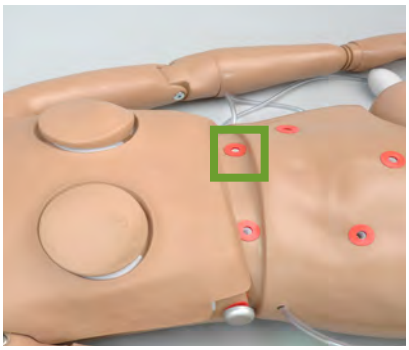
The upper torso contains a realistic stomach and liver. A gastrostomy left port, located near the waist, connects directly to the stomach tank.



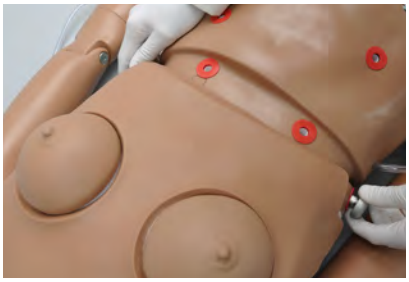
Draining the Stomach Reservoir

It is recommended to flush and clean the stomach reservoir after every simulation. Follow the procedure below to drain the stomach reservoir.

1. Fill the stomach reservoir with a solution of 30:70 mix of isopropyl alcohol and water

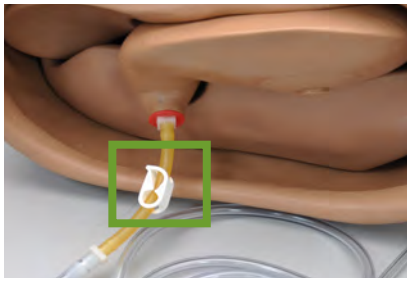


2. Unscrew the waist knobs

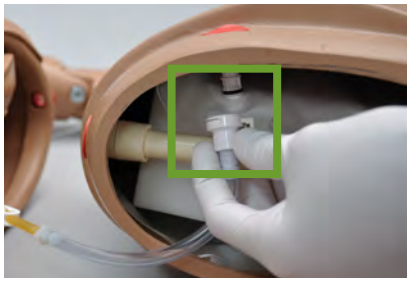


3. Remove the waist rod

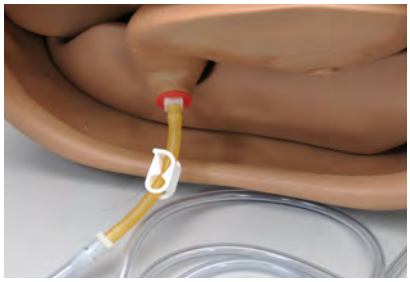
4. Close the clamp coming from the stomach reservoir



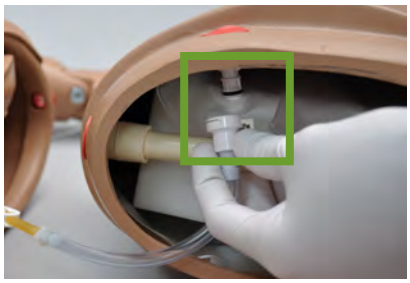
5. Disconnect the stomach reservoir from the lower torso



6. Open the clamp and squeeze the contents to drain from the stomach



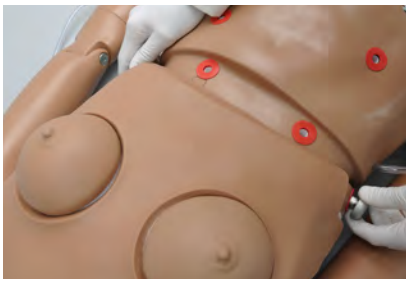
7. Reconnect the stomach reservoir to the lower torso



8. Align the lower torso to the upper torso

9. Insert the waist rod

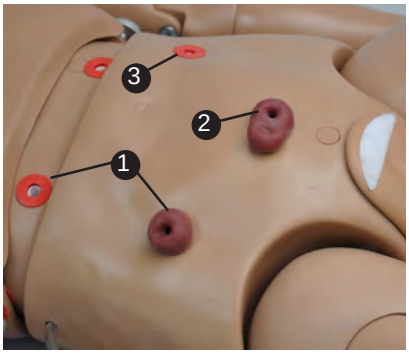
10. Screw the waist knobs back in place



Stomas, Rectum, and Suprapubic Cystostomy

The simulator has anatomically sculptured stomas of ileostomy and suprapubic cystostomy.

Practice skin preparation, stoma hygiene, treat conditions around the site, and apply disposable or permanent ostomy bags to the openings.



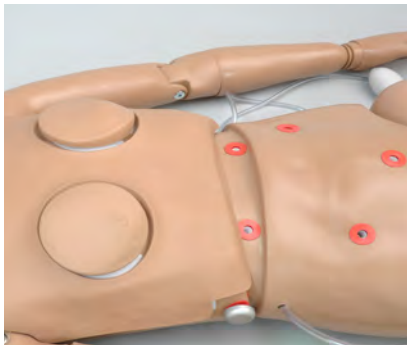
1. Stomas
2. Suprapubic Cystostomy
3. Rectum (Colostomy)

Internal Reservoirs Maximum Capacity

Tank	Capacity
Stomach	750 ml
Bladder	1800 ml
Rectum	800 ml
Stomas	650 ml

Flushing the Stoma Reservoir

It is recommended to flush out the stoma reservoir after every simulation.



1. Inject a 30:70 mix of isopropyl alcohol to water into the stoma port
2. Suction fluid from the stoma port

4.5 Hospital Care Capabilities

> **WARNING: Always use lubricant prior to introducing an invasive device.**

Bandaging

The toes of the simulator are separated to permit bandaging exercises. The surface of the simulator is smooth and resistant to water, oil, and liniments.

Eyes/Ophthalmologic Exercises

The head has eyes that open and close, permitting the following exercises:

- Administration of orbital medicines into the conjunctival sac
- Removal of foreign bodies
- Eye irrigation

Hygienic Care

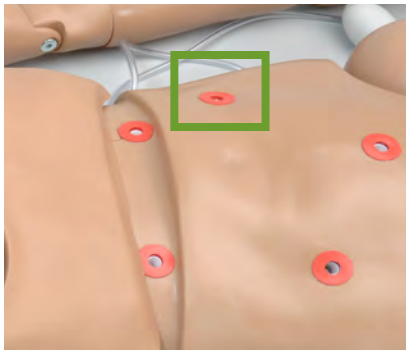
The head of the simulator is supplied with a wig, permitting instruction in combing, shampooing, and head draping.

Enema Administration

The legs articulate to permit enema exercises with the simulator on its back. The enema should be introduced with an anal nozzle of small diameter.

A non-return valve is built into the anal canal to prevent fluid spilling during instillation.

Use the port on the **left** to fill the enema reservoir. The enema reservoir capacity is approximately 800 ml.



4.6 Options

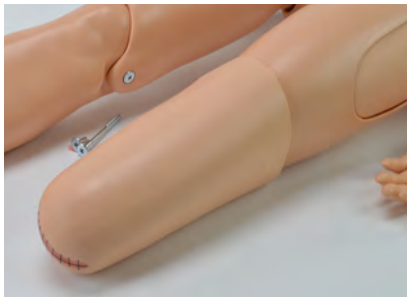
Amputation Stump

To attach the amputation stump, follow the procedure below:

1. Unscrew the bolts at the knee joint using the hexagonal wrenches provided

2. Remove the lower leg and align the amputation stump with the upper leg

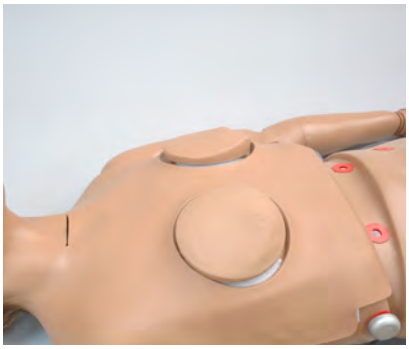
3. Slide the amputation stump over the upper leg



5. Breast Examination

Breast Palpation and Examination

The simulator is provided with a set of male and female breast inserts.

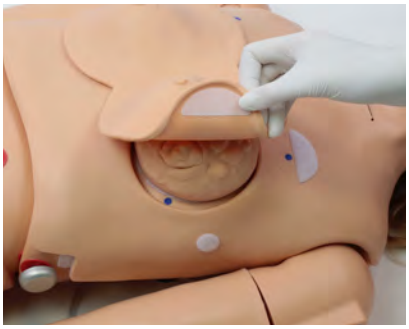


5.1 Abnormal Breast Package (S222.100)

Breast examination should be done with the simulator in a semi-upright position.

1. Place the desired breast (s) in place and attach the soft vinyl brassiere onto the torso.

2. Feel the left breast with the right fingers and the right breast with the left fingers.



3. Move the fingers in a circular movement around the breast.

5.2 Interchangeable Breasts

Breast #1

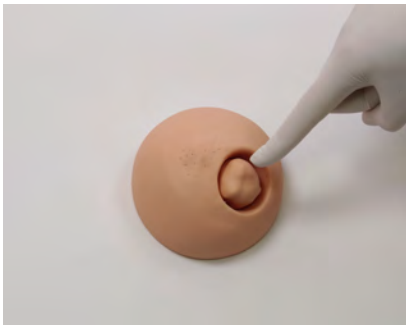
Demonstrate and practice the movement of the mammary gland on the surface of the pectoralis major muscle.

Breast #2

Seven discreet nodes on one side, a somewhat larger node on the other side, and a very discreet puckered area around the nipple. This breast represents various stages of fibro-cystic disease. The larger node may be felt either as a hard node or as a cystic mass or swelling.

Breast #3

There is a solitary tumor in the breast below. It is well circumscribed and has a stalk. The tumor can be moved, and is not adherent to breast tissue.



Breast #4

This breast shows a retracted nipple and on careful palpation, a mass may be felt immediately under the nipple. This breast represents a carcinoma in one of the milk ducts and also shows the so-called “orange skin” effect on the entire nipple area.

Attach the Velcro on the nipple to the Velcro on the inside of the brassiere.

Breast #5

The breast here shows a comparatively rare but easily palpable tumor: a giant sarcoma (or giant mammary myxoma) of which the wildly growing masses (the largest one shown in ulcerated form) can be easily felt and seen.

Breast #6

This form of breast cancer (scirrhous carcinoma). When palpating, note the infiltrating nature of the growth. It has no well-defined borders and cannot be moved within the breast.

Breast #7

Place the masectomy breast under the lymphatic drainage breast to palpate and identify a masectomy.

This replica of the lymphatic drainage of the left breast outlines the various pathways along which breast tumors metastasize. The auxiliary pathway, subclavian pathway, and internal mammary pathway are shown and are easily palpable.

6. Gynecologic Examination

The S222 allows for vaginal douching and pap smear exercises with realistic vagina and cervix.

The simulator features a full-size adult female lower torso, consisting of the abdomen and pelvis. It is a training tool to teach the processes and skills needed to perform the following:

- Bimanual pelvic examination, including palpation of the normal and abnormal uteri
- Vaginal speculum examination
- Visual recognition of normal and abnormal cervical disorders
- Uterine sounding
- IUD insertion and removal
- Diaphragm sizing and fitting
- Recognition of early pregnancy

The package includes:

- Normal anteverted uterus with transparent top and round ligaments
- Normal cervix with patent os for IUD insertion/removal
- Spare locking ring
- Cervix with linear erosion
- Cervix with cervical polyp and Nabothian cyst
- Cenvix with acute purulent cervicitis
- Cervix with carcinoma of cervix
- Ten (10) week pregnant uterus and cervix having a typical dusky blue color

7. BP Arm Features

The BP arm is a standard feature for the S222.100.

7.1 Overview

The Blood Pressure Training System consists of a full-size adult left arm. This is a versatile training tool developed to assist health professionals teach the processes and skills required to perform blood pressure auscultation procedures and techniques.

7.2 Features

Palpable Pulses

Programmable, palpable radial pulse is present when the cuff pressure is less than the selected systolic blood pressure.

Korotkoff Sounds

Korotkoff sounds, K1 through K4 (K5 is silent) are audible between systolic and diastolic pressures. Depending on the selected heart rate and the rate of cuff deflation, the Korotkoff sounds will adjust automatically. The sounds are silenced automatically if the auscultatory gap is enabled.

Auscultation

The simulator operates with a modified blood pressure cuff. Connect the BP cuff extension to the arm's control panel before use. Use a conventional stethoscope to auscultate Korotkoff sounds in the antecubital area.

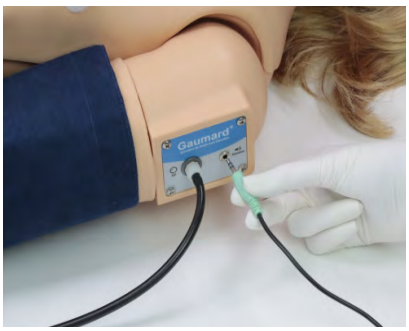
Instructions for Use

1. Connect the simulator to OMNI

2. Wrap the cuff around the left arm.

3. Connect the modified blood pressure line to the panel on the left shoulder.

4. Connect the speakers to the port on the shoulder.



5. Place the bell of the stethoscope on the antecubital region of the arm.

6. Pump up the cuff until the radial pulse is absent.

7. Slowly release the cuff and listen for Korotkoff sounds.

Blood Pressure Calibration

1. Follow steps 1 to 4 in the section 5.2 “Instructions for Use”

2. On the OMNI device, select “BP ARM”

3. To calibrate, select “CALIB”

4. Press “NEXT” to continue

OMNI will prompt you to hold the BP cuff at a certain pressure

5. Hold the pressure of 0mmHg and press the “NEXT” button

6. Hold the BP cuff pressure at 20mmHg and press “NEXT”

7. Continue until the pressure reaches 300mmHg

After calibrating, OMNI will return to the main screen and display the reading on the sphygmomanometer.

> **Refer to Section 8 “Working with OMNI Code Blue and BP Arm” for more information on using OMNI.**

8. Heart and Lung Sounds Feature

The heart and lung sounds feature is standard for the S222.100.

8.1 Overview

The Heart and Lung Sounds teaching system is a tool used for auscultation training. The system is composed of a Virtual Stethoscope™ and RFID sensors located beneath the skin of the simulator.

The Virtual Stethoscope has incorporated:

- Power button
- Sound menu button

The torso of the simulator has numerous removable identification dots located where each of the heart and lung sounds are normally heard. These colored dots can be removed at any time to palpate and find the auscultation sites on the front and the back of the simulator. Each auscultation location relates to the physiology of the torso.

8.2 Setup

1. The Virtual Stethoscope comes with two batteries installed.

2. Unscrew the top cover of the stethoscope bell. Remove and discard the plastic insert separating the two batteries prior to first use.

3. Locate the small stereo jack on the bell and attach the speakers provided. Plug the speakers into a conventional 120V/60 Hz wall outlet and turn the speakers on.

The speakers provide external feedback of the auscultation sounds. If the speakers are disconnected, only the student will hear the heart and lung sounds through the ear pieces on the virtual stethoscope.

Refer to the Virtual Stethoscope User Guide to use the system.

8.3 Menus

Location	Heart Sound	Comment
Base Right	Base Sound	Patient has a normal heart with mild anemia. The heart is hyper-dynamic and has elevated cardiac output. S2 is accentuated at the base.
	Fixed Split S2	Patient has an atrial septal defect which increases flow through the right heart, prolongs RV systole and also produces a mid-systolic murmur (MSM) because of increased flow through the RV outflow tract.
Base Left	Physiological Split S2	The splitting of S2 is easily heard during inspiration and the second sound is single during expiration. The second component of the split sound (P2) is accentuated.
	Split S2	S2 is variably split during mid-inspiration, as three beats are repeated.
Left Side Sternal Border	Paradoxical Split S2	The splitting of S2 is heard during expiration, but the sound becomes single during inspiration.(The background noise is increased during inspiration.)
	Opening Snap	Patient has mitral stenosis, responsible for an early crisp diastolic sound heard at the base 0.08 seconds after S2. S1 is usually loud at the base, which reflects mitral stenosis.
	Friction Rub	Patient has uremic pericarditis, which leads to rubbing of roughened visceral and parietal pericardial surfaces against one another. The 3 component rub exists during deep inspiration.

Apex	Apex Sound	Patient has a normal heart with mild anemia. The heart is hyper-dynamic and has elevated cardiac output.
	Mid-Systolic Click	Patient has mitral prolapse, which produces a mid-systolic click heard during inspiration.
	S3 Sound	Patient has a readily heard third heart sound. S3 occurs later in diastole than the opening snap.
	Intermittent S4	Patient has left ventricular hypertrophy, and has a fourth sound (S4) which is not heard on every cycle. The sound is presystolic, about 0.1 second before S1.
	Starr-Edwards Valve	This ball-in-cage mitral prosthesis has a mechanical closing sound (S1) and one or more diastolic sounds caused by the ball bouncing within the cage.
Trachea	Tracheal Sounds	Expiration sounds are louder, have a higher pitch, and are of longer duration than during inspiration. The silent period or pause following expiration is longer than the one between expiration and inspiration.
Trachea	Stridor Sounds	Patient has marked respiratory distress, and a narrow aperture between the vocal cords that produces a high pitched tone during both inspiration and expiration. During the end of expiration, there is an abrupt drop in pitch.
Upper Anterior (Two Sites)	Bronchial Sounds	Breath sounds are similar to tracheal sounds in that the expiratory phase is louder and lasts longer than the inspiratory phase. The major distinguishing characteristic is the high pitched, harsh quality of the expiratory phase.
	Wheezing Sounds	These wheezing sounds are often heard in asthma patients. During inspiration, the wheeze is slightly higher in pitch than during expiration. Wheezing in asthmatics is often present in either one or both phases of respiration.
Lower Anterior (Two Sites)	Bronchial Sounds	Breath sounds are similar to tracheal sounds in that the expiratory phase is louder and lasts longer than the inspiratory phase. The major distinguishing characteristic is the high pitched, harsh quality of the expiratory phase.

Posterior (Four Sites)	Wheezing Sounds	These wheezing sounds are often heard in asthma patients. During inspiration, the wheeze is slightly higher in pitch than during expiration. Wheezing in asthmatics is often present in either one or both phases of respiration.
	Pleural Friction	This sound originates from the friction of inflamed pleural surfaces moving against one another. The sound is repetitive as long as the breathing pattern and position remain constant. Similar to but lower in pitch than crackles.
Posterior (Four Sites)	Medium-Fine Crackles	These noises begin about mid-inspiration and progressively increase in intensity up to the end of expiration. Coarse crackles are also audible in the early expiratory phase of some of the breaths.
	Ronchi, Crackles	Coarse crackles are present during both inspiration and expiration. There are also some very low pitched repetitive sounds that are ronchi. High pitched squeaks are also audible against a background of bronchial breath sounds.
	Coarse Crackles	Coarse crackles begin at the onset of inspiration and diminish in intensity and prevalence toward the end of inspiration. Expiration is not audible.
	Pulmonary Edema	Coarse and medium crackles appear toward the end of inspiration and continue into expiration. The respiratory rate is rapid and expiratory phase is “bronchial” in character. These features exist during respiratory distress and congestion.

9. Working with OMNI Code Blue and BP Arm

9.1 OMNI Code Blue

OMNI® Code Blue is a CPR training tool designed to help teach CPR by monitoring cadence and depth of compressions as well as airway ventilations in real time.

eCPR

- eCPR is an application that enables monitoring and logging of compressions and ventilations, performed in real time by the user, on a PC.
- This software aims to provide additional testing and teaching tools for CPR using an interface to display a waveform graph of the compressions and ventilations.
- For instructions on how to use eCPR, please refer to the OMNI® User Guide.

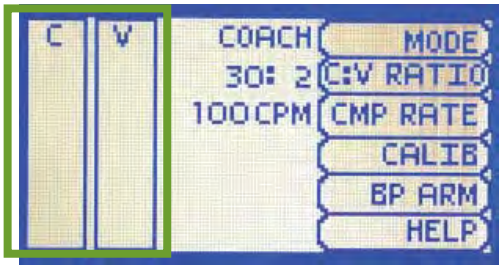
Main Screen

The OMNI® startup screen is divided into three sections:

1. Feedback Graphics
2. Current Settings
3. Navigations Menus

Feedback Graphics

Monitor and evaluate depth and cadence of compressions and ventilations in real time.



Current Settings

The current settings are listed on the middle of the screen. The settings will reflect the information saved during a previous session.

Navigation Menus

- Select a menu item by pressing the soft key buttons located on the right side of the controller. Each menu has additional submenus or toggle selections.

- Use the submenus to decrease, ncrease, accept, or cancel values.

Navigation Menus

MODE

This submenu is for the CPR operational mode. Switch between TEST and COACH mode.

COACH mode generates audible tones to coach CPR ratio. A high-pitched beep signals the care provider to perform a compression and a low pitched beep signals a ventilation.

Use **TEST** mode to perform CPR without the audible cues.

C:V RATIO

Customize the compression to ventilation ratio to match correct guidelines.

Use the + and - buttons.
Press “OK” to save the changes.

CMP RATE

- Adjust the number of compressions or ventilations per minute
- The default is 100 CPM

1. Select “CMP RATE” button

2. Adjust the rate using the + and - buttons

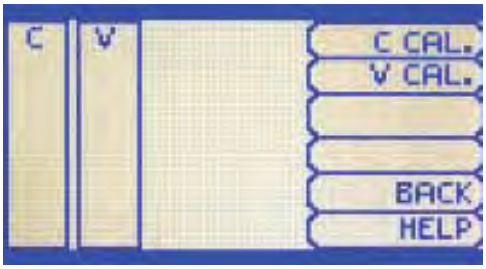
3. Press “OK” to save the changes

> **The compression rate limit is 50 - 150 CPM. The ventilation rate is 2 - 60 VPM.**

CALIB

Access this submenu to calibrate compressions and ventilations.

Refer to section 4.2 and 4.3 for instructions to calibrate ventilations and compressions.



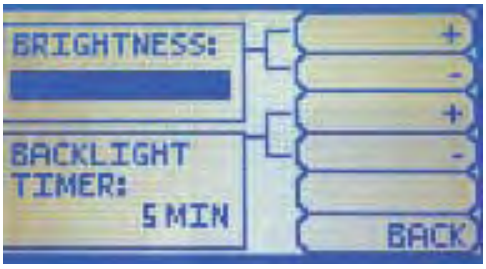
HELP

The help window provides access to global settings such as backlight time and OMNI®/ Simulator serial number.

SCREEN: The default value for OMNI®'s backlight timer is 10 minutes. After 10 minutes the backlight will turn off.

1. Press "SCREEN" to access the backlight settings

2. Use the + and - buttons to adjust the brightness and time of the backlight



SERIAL NUMBER: View the serial number of the manikin and OMNI device in this screen

1. Press "SERIAL" in the Help menu

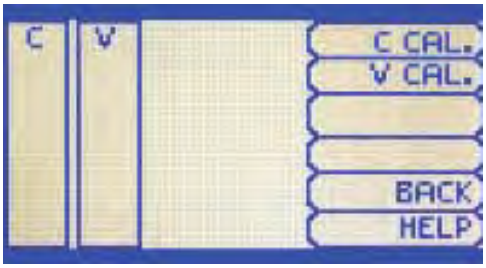
2. View the serial number on the device and press "OK" to exit

Pressure Sensor

It is recommended that the OMNI® controller's pressure sensor is reset at altitudes greater than 1000 ft. to avoid inaccurate compression and ventilation readings.

1. Navigate to the calibration menu

2. Select either "C CAL." or "V CAL."



3. Press the "RESET" button

4. Perform the calibration as explained in section 4.2 and 4.3

5. Press "SAVE" when finished

> **It is recommended to do the reset for both compressions and ventilations.**

9.2 OMNI and BP Arm

The BP arm is a standard feature for the S222.100.

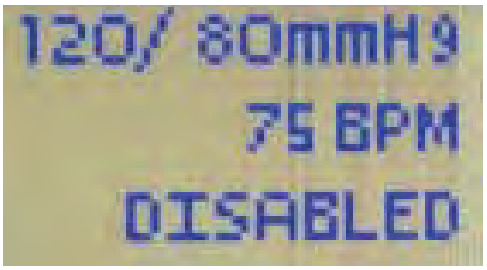
Main Screen

The main screen is split up into sections:

1. Current Settings
2. Feedback Graphics
3. Navigation Menus

Current Settings

The current settings displays the set blood pressure, heart rate, and if auscultatory gap is enabled or disabled.



Feedback Graphics

The feedback graphic displays the BP cuff pressure in real time at the bottom of the screen.

Navigation Menus

Edit BP settings using the navigation menus. Select a menu item by pressing the soft key buttons located on the right side of the controller. Each menu has additional submenus. Use the submenus to decrease, increase, accept, or cancel values.

Navigation Menus

SET BP

To change the blood pressure of the simulator,

1. Press “SET BP”

2. Select either “SYSTOLIC” or “DIASTOL.”

3. Use the + and - buttons to adjust the systolic and diastolic pressure
4. Press “OK” to save the changes

PULSE

1. Select “PULSE”

2. Use the + and - buttons to adjust the heart rate
3. Press “OK” to save the changes

AU. GAP

Enable or disable the auscultatory gap in this submenu. Set an interval of pressure where Korotkoff sounds dissipate.

1. Select “AU. GAP”

2. Press the “ENABLE” button to activate the gap

3. Use the “UPPER” and “LOWER” buttons to set the limits of the auscultatory gap

VOLUME

Change the volume of the Korotkoff sounds in the volume submenu.

1. Select “VOLUME”

2. Use the + and - buttons to increase or decrease the volume

3. Press “OK” to save the changes

10. Working with OMNI 2

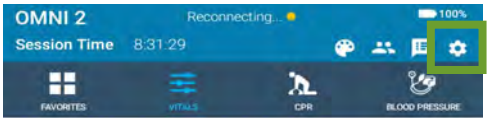
This option is compatible with the S222.250 or with the purchase of an OMNI Link

10.1 Blood Pressure Calibration With OMNI 2

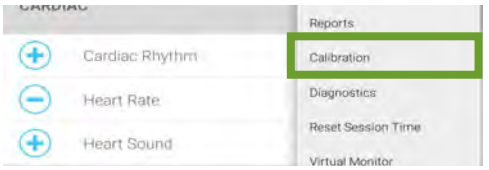
Before starting the calibration process, place the blood pressure cuff on the simulator as it would be placed as instructed above.

To calibrate the blood pressure feature using OMNI tablet:

1. Tap the gear icon on the upper-right corner of the screen.



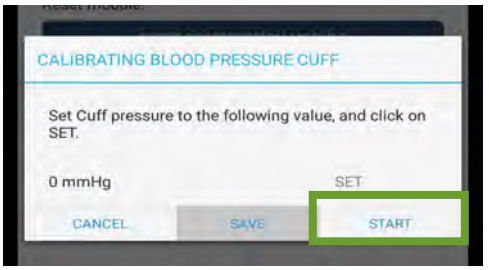
2. Select “Calibration”



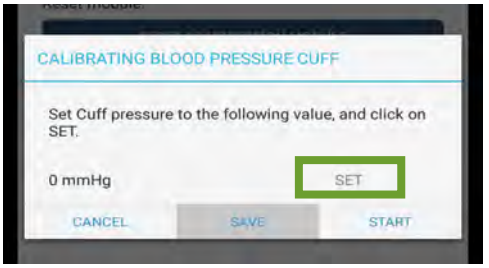
3. Press “Left Blood Pressure”.

4. Select “Start” in the calibration window to begin

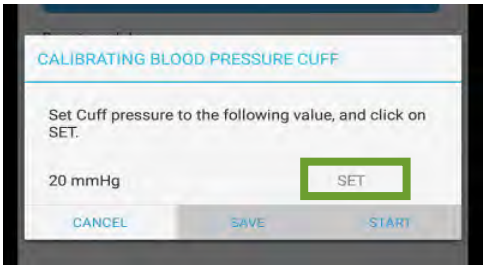
5. Set the pressure on the BP cuff to 0 (i.e. cuff valve open) as prompted by the calibration wizard.



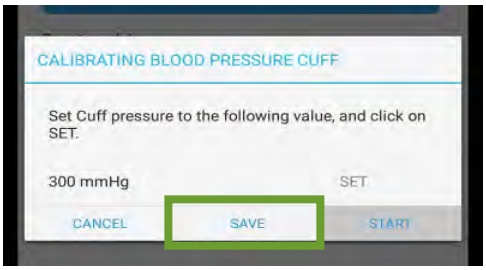
6. Tap “SET” when the gage reads 0 mmHg.



7. Set the pressure on the BP cuff to 20 mmHg as prompted by the wizard and then Click “SET” to record.



8. Continue increasing the BP cuff pressure as indicated by the prompt and recording the pressure intervals.



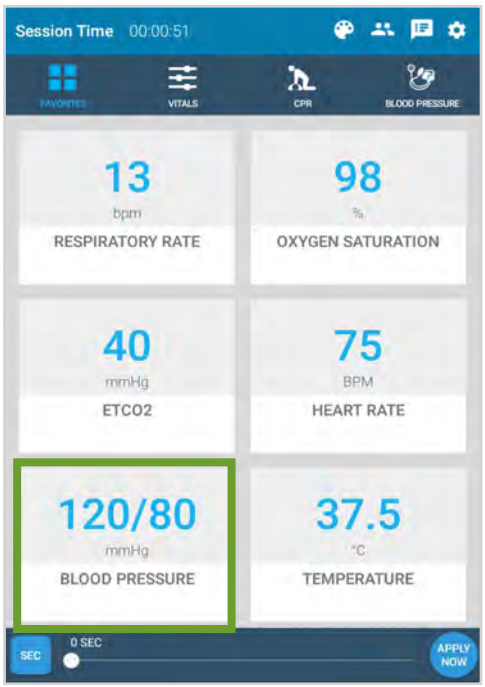
9. At the end of the calibration, click “SAVE” to accept and close the calibration wizard.

10. Tap “DONE” in the Calibration window to apply the settings.

Instructions for Use

1. Follow the instructions above to setup and calibrate the blood pressure arm

2. Set the blood pressure in OMNI® 2



3. Place the bell of the stethoscope on the antecubital region of the arm.

4. Pump up the cuff

5. Slowly release the cuff and listen for Korotkoff sounds.

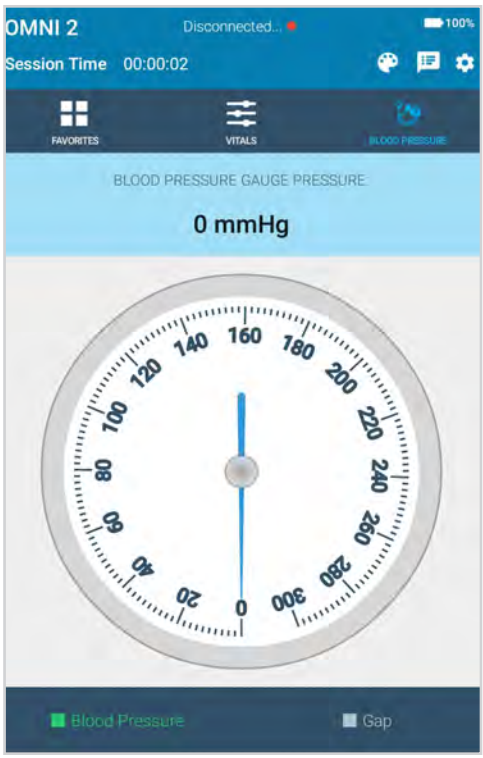
10.2 OMNI® 2 and BP Arm

In the Favorites and Vitals page, adjust the systolic or diastolic values, heart rate, and enable the auscultatory gap.

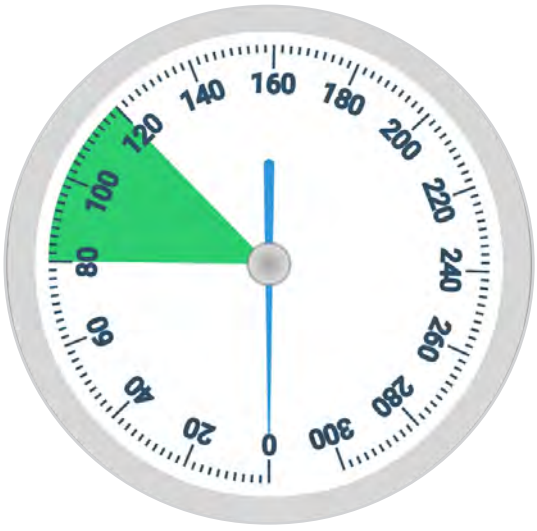
Blood Pressure

Access the blood pressure page to receive real time feedback of a blood pressure measurement.

Recieve a real time numerical value of the cuff pressure in this page.



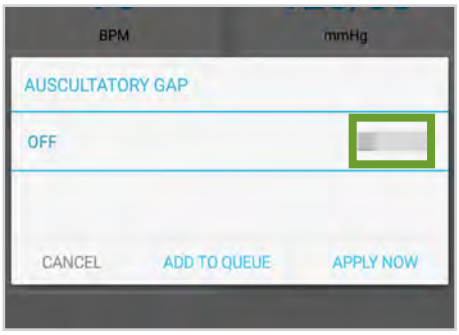
The current blood pressure is shown in green.



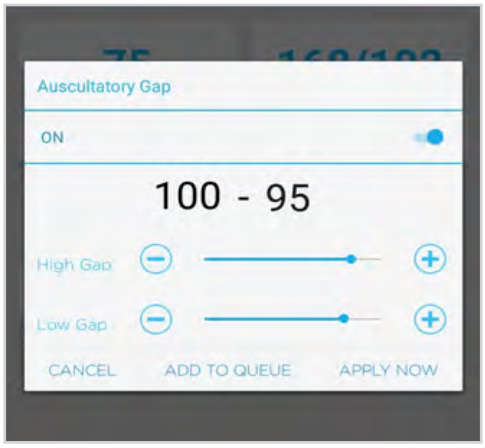
If an auscultatory gap is applied, it will show in grey and the korotkoff sounds will be disabled in the simulator.
To enable the auscultatory gap,

1. Press “Auscultatory Gap” in either Favorites or Vitals Page.

2. Slide the Auscultatory Gap ON



3. Adjust the gap values and select “APPLY NOW”



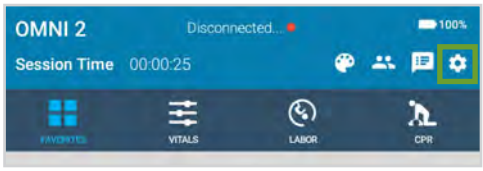
The gap can be vizualized in the Blood Pressure Page. The area will be greyed out.

10.3 Virtual Monitor Setup (Optional)

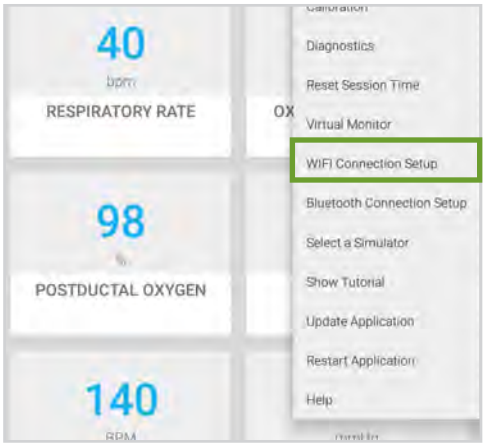
A patient virtual monitor is an optional purchase with OMNI® 2. Follow the steps below in order to activate this feature:

> **The simulator must be connected to the OMNI® 2 tablet in order to establish a connection to the Virtual Monitor.**

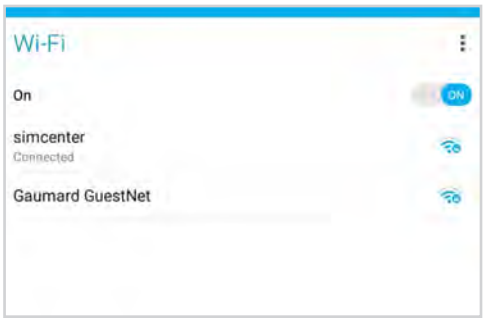
1. Connect the provided router to the wall.
2. Tap the gear on the top right of the screen.



3. Select “WIFI Connection Setup”.



4. Connect to a wireless network.

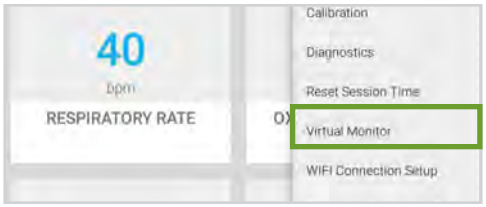


> **The network name will be “GaumardSimulatorSerialNumber”**

5. Exit the page by tapping the back button.

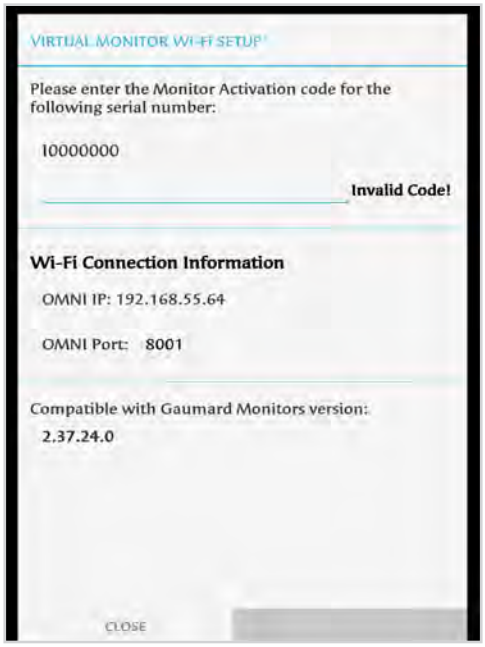
6. Tap the gear on the top right of the screen.

7. Select “Virtual Monitor”.



8. Follow steps 9-10 if the activation code was not inputted.

9. Verify that the serial number corresponds to the manikin.



10. Input a valid activation code.

> **The activation code is case-sensitive.**

> **Note that the activation code above is just an example. It is not a valid code.**

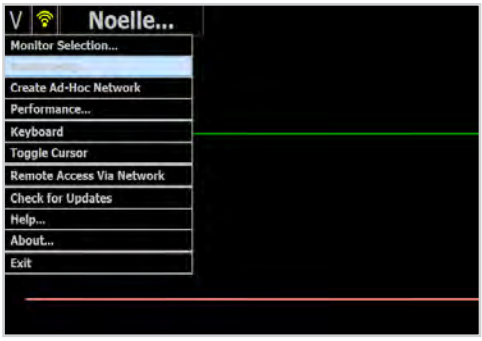
11. Take note of the OMNI IP and OMNI port.

12. Select “CONNECT”.

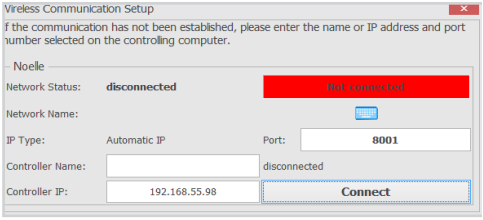
13. On the monitor, connect to the same network as OMNI® 2.

14. Once connected to the WIFI, open the Gaumard Monitors software.

15. Tap the V on the top left and then select “Comm Setup”.

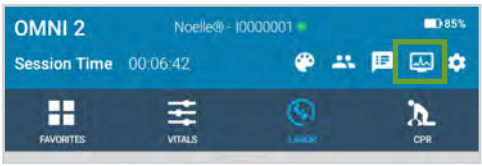


16. Verify that the IP address in the “Wireless Communication Setup” matches the Omni IP and Omni Port noted before.



17. Select “Connect”.

The Vital Signs Monitor icon will appear on the top right when it is connected.



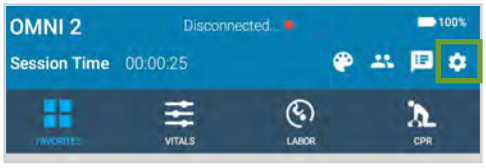
> **For more information on how to use the Virtual Monitor, please refer to the Omni 2 User Guide.**

10.4 OMNI® Link Setup

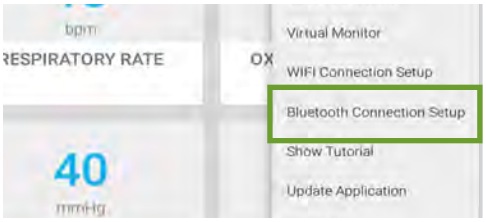
Follow steps 1-5 if the notification below appeared:

OMNI® 2 has to be paired to a simulator to establish a connection with the simulator.

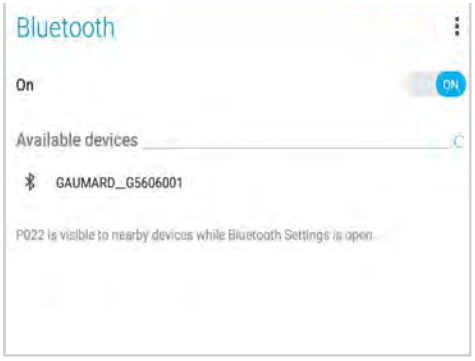
1. Tap the Gear on the upper-right corner of the screen.



2. Tap “Bluetooth Connection Setup”.



3. Select the simulator’s serial number under “Available Devices”.

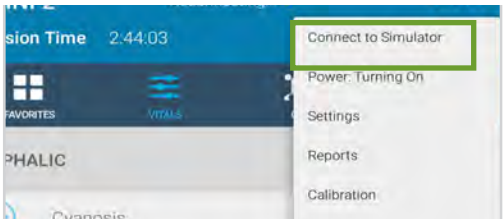


> **The device name will be Gaumard_SimulatorSerial-Number**

4. Wait for the device to pair with the OMNI® 2. This can take up to 30 seconds.

5. Once paired, tap the back arrow to return to the main screen.

6. Tap the gear on the upper-right and select "Connect to Simulator"



7. Select the simulator you wish to connect to and tap "Connect and Save as Default"

The name of the simulator and the serial number appear at the top of the screen. The green dots indicate the strength of connection.

OMNI® 2 can be operated up to 10 meters from the simulator.

11. Appendix

11.1 Spare Parts List

Contact Gaumard Scientific for a complete list of consumables and replacement parts and their prices.

Item	Type	Code
Lubricant	Consumable	S222.100.974
Power Supply	Replacement	S222.100.968
Dispensing Blood Bag	Consumable	S222.100.811
Artificial Blood Concentrate	Consumable	S222.100.812
Arm Skin	Consumable	S222.100.813R. IV.L/M/D

11.2 Removing the Internal Reservoirs (S222.100)

The internal reservoirs may be removed for a more thorough cleaning. It is not necessary to do this procedure after every simulation.

1. Carefully remove the stoma from the lower torso

2. Lift the lower torso skin

3. Press the push connectors

4. Remove the reservoirs

5. Inject a mix of 30:70 isopropyl alcohol to water solution and rinse out the reservoir

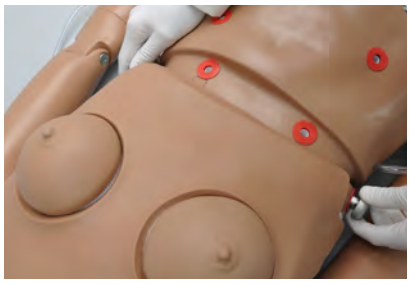
6. Reconnect the reservoir

7. Press the lower torso skin in place

11.3 Removing the Internal Reservoirs (S222)

The internal reservoirs may be removed for a more thorough cleaning. It is not necessary to do this procedure after every simulation.

1. Unscrew the waist knobs



2. Remove the waist rod

3. Separate the upper torso from the lower torso

4. Remove the support

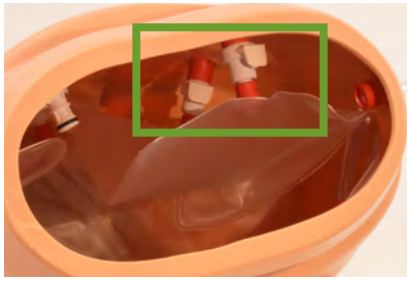
5. Disconnect the connector from the stomach port

6. Apply some pressure to the top of the lower torso

7. Remove the white guide tube one side at a time

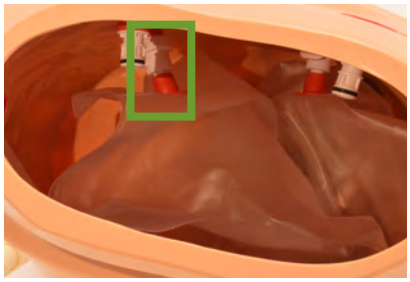
8. Then, remove the foam insert

The stoma reservoir is located on the simulator's right side.



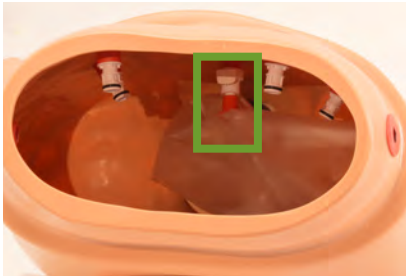
9. Remove the reservoir by pressing the push connectors

The rectum reservoir is connected to the simulator's left side and to the bottom of the simulator.



10. Press the push connector to remove one end of the bag and gently pull the other end of the bag that is connected to the rectum

The bladder has a push connector in the suprapubic region and is then connected to the urethra.



11. Press the push connector to remove one end of the bag and gently pull the other end of the bag

12. Fill the reservoir bags with a mix of 30:70 alcohol and water solution

13. Squeeze out the contents of the bag

14. Reattach the reservoir bag

15. Insert the foam

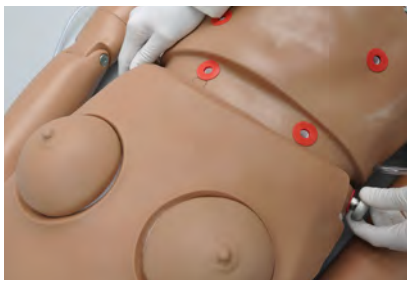
16. Push the white guide tube in place

17. Connect the hose from the upper torso to the stomach port

18. Align the upper torso and lower torso

19. Insert the waist rod

20. Screw on the waist knobs



11.4 Troubleshooting

Communication/Power Issues

OMNI is not turning on

Power supply is not connected to simulator	Connect power supply cable to simulator and the other end to a power source
Communication cable not connected to OMNI or the simulator	Connect the communication cable to the simulator and to OMNI

OMNI takes too long to boot up

A system restore is required	1. Unplug the communication cable from Omni 2. Press and hold down the two outer keys located on the right side of the controller while reconnecting the communication cable 3. Once a “Please Wait” message appears on the screen, release the outer keys

Miscellaneous Issues

CPR is not detected

Compression and ventilation sensor is not calibrated	Follow the calibration procedure outlined in section 4.2 and 4.3

12. Warranty

12.1 Exclusive One-Year Limited Warranty

Gaumard warrants that if the accompanying Gaumard product proves to be defective in material or workmanship within one year from the date on which the product is shipped from Gaumard to the customer, Gaumard will, at Gaumard's option, repair or replace the Gaumard product.

- This limited warranty covers all defects in material and workmanship in the Gaumard product, except:
  - Damage resulting from accident, misuse, abuse, neglect, or unintended use of the Gaumard product;
  - Damage resulting from failure to properly maintain the Gaumard product in accordance with Gaumard product instructions, including failure to property clean the Gaumard product; and
  - Damage resulting from a repair or attempted repair of the Gaumard product by anyone other than Gaumard or a Gaumard representative.

This one-year limited warranty is the sole and exclusive warranty provided by Gaumard for the accompanying Gaumard product, and Gaumard hereby explicitly disclaims the implied warranties of merchantability, satisfactory quality, and fitness for a particular purpose. Except for the limited obligations specifically set forth in this one-year limited warranty, Gaumard will not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory regardless of whether Gaumard has been advised of the possibilities of such damages. Some jurisdictions do not allow disclaimers of implied warranties or the exclusion or limitation of consequential damages, so the above disclaimers and exclusions may not apply and the first purchaser may have other legal rights.

This limited warranty applies only to the first purchaser of the product and is not transferable. Any subsequent purchasers or users of the product acquire the product "as is" and this limited warranty does not apply.

This limited warranty applies only to the products manufactured and produced by Gaumard. This limited warranty does not apply to any products provided along with the Gaumard product that are manufactured by third parties. For example, third-party products such as computers (desktop, laptop, tablet, or handheld) and monitors (standard or touch-screen) are not covered by this limited warranty. Gaumard does not provide any warranty, express or implied, with respect to any third-party products. Defects in third-party products are covered exclusively by the warranty, if any, provided by the third-party.

- Any waiver or amendment of this warranty must be in writing and signed by an officer of Gaumard.
  - In the event of a perceived defect in material or workmanship of the Gaumard product, the first purchaser must:
  - Contact Gaumard and request authorization to return the Gaumard product. Do NOT return the Gaumard product to Gaumard without prior authorization.
  - Upon receiving authorization from Gaumard, send the Gaumard product along with copies of (1) the original bill of sale or receipt and (2) this limited warranty document to Gaumard at 14700 SW 136 Street, Miami, FL, 33196-5691 USA.

If the necessary repairs to the Gaumard product are covered by this limited warranty, then the first purchaser will pay only the incidental expenses associated with the repair, including any shipping, handling, and related costs for sending the product to Gaumard and for sending the product back to the first purchaser. However, if the repairs are not covered by this limited warranty, then the first purchaser will be liable for all repair costs in addition to costs of shipping and handling.

13. Contact Gaumard

13.1 Contacting Technical Support

Before contacting Technical Support you must:

1. Have the simulator's serial number
2. Have access to the simulator for possible troubleshooting as needed

Technical Support:
Email: support@gaumard.com
USA: 800-882-6655
INT: 01-305-971-3790

13.2 General Information

Sales and Customer Service:
E-mail: sales@gaumard.com
USA: 800-882-6655
INT: 01-305-971-3790
Fax: 305-667-6085

Post:
Gaumard Scientific
14700 SW 136 Street
Miami, FL 33196-5691
USA

Office Hours:
Monday-Friday, 8:00am - 7:30pm EST

Gaumard®

Simulators for Health Care Education

Always dispose of this product and its components in compliance with local laws and regulations.

www.gaumard.com | 800-882-6655 | 305-971-3790 | Fax: 305-667-6085 | sales@gaumard.com

MADE IN THE U.S.A.

UG.S222.100 and S222.250