

nio

VASCULAR ACCESS PRODUCTS

Achieve fast, safe, and effective
intraosseous access in 10 seconds or less!





Achieve fast, safe, and effective intraosseous access in 10 seconds or less!

No batteries. No assembly. No extra parts.

With a 98% success rate¹, remarkable ease of use, a 5-year shelf life, and an all-in-one design that is safe and sterile, the NIO is intraosseous access reinvented.

NIO INFANT™



NIO PEDIATRIC™



NIO ADULT™



NIO 4™



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Clinically Proven Success

SAFE ON THE BONE².

The NIO has proven to be safe on the bone and resulted in zero incidents of bone fracture as observed by post-insertion x-rays.

TOLERATES COMMON USER ERRORS³.

A recent study evaluated common user errors related to placement and found that even when placed up to 5cm from the correct insertion site, the NIO maintained an 85% success rate.

FIRST ATTEMPT SUCCESS RATES AS HIGH AS 98%¹.

Initial studies demonstrated an overall average success rate of 91.3% for the proximal tibia and 93.1% for the humeral head. The New York Institute of Osteopathic Medicine conducted an additional study which established a proximal tibia success rate of over 98%¹

- FASTER THAN DRILL-BASED DEVICES
- SHELF LIFE OF THE WNIO VS OTHER DEVICES= 5YRS VS 3YRS
- NIO: ONE SIZE FITS ALL | 98% SUCCESS RATE* VS TIBIA HUMERUS BARIATRIC DRILL: NEED TO SELECT NEEDLE BASED ON LOCATION OF PROCEDURE WHICH COST VALUABLE TIME.

Meet the

NIO —

VASCULAR ACCESS PRODUCTS



First-Attempt Success Rates as High as 98%

In a study The New York Institute of Osteopathic Medicine

¹ Suissa, Einat. *NIO-A.V Report 09, Occurrence of Fractures in Bones*. 2013.



Rapid Results

Average placement time of 10 seconds achieved by trained professionals



Safe on the Bone

Zero incidents of bone fractures as observed by post-insertion X-rays₂

² NIO-A.V Protocol 10. 2012; NIO-A.V Protocol 11. 2012; NIO-A.V Protocol 13. 2013.

Flow rates:

- Proximal humerus (adult): 5-9L/hr; 3 seconds to the heart₃
- Proximal tibia (adult): 1L/hr; 40-60 seconds to the heart₄

Benefits:

- 5-year shelf life
- Single-use device
- No exposed needle

Comes with a GO IO™ Intraosseous Start Kit:

- NIO Fixation Securement Dressing
- IV extension set with 90° connector + 3-way stopcock
- Secure IV™ Strap
- Needle VISE™
- Patient bracelet
- Alcohol prep pads

³<http://www.emra.org/emresident/article/resuscitation-and-the-humeral-intraosseous-line/>
⁴<http://www.pyng.com/wp-content/uploads/2015/10/TCCC-Pasley-HP-IO-Infusion-J-Trauma-2015.pdf>

NIO - Next Generation IO™

With a 98% success rate¹, remarkable ease of use, a 5-year shelf life, and an all-in-one design that is safe and sterile, the NIO is intraosseous access reinvented.



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Meet the

NIO —

Next-Generation IO™

NIO AGE GROUP

newborn – 3 years old
(36 gestational age and 2.3kg)



PROXIMAL TIBIA ACCESS SITE:
Locate tibial tuberosity and extend patient's leg. Insertion site is approx. 1cm medial to the tibial tuberosity, or just below the patella (approx. 1cm or one pinky finger width) and slightly medial (approx. 1cm or one pinky finger width), along the flat aspect of the tibia. Use your non-dominant hand to hold and stabilize the limb. Pinch patient's tibia between your fingers to identify the medial and lateral borders and locate the center.

★ = Proximal tibia access site



NIO Infant *

3-12 years old



PROXIMAL TIBIA ACCESS SITE:
This device features locating arrows which aid in access site landmarking. To operate, place the designated locating arrow (R for right leg, L for left leg) on the prominent aspect of the tibial tuberosity, aligned parallel to the long axis of the tibia. Locating arrows should be pointing up towards the patient's knee.


Age
3-9 years 14mm
9-12 years Adjust to 18mm

★ = Proximal tibia access site




NIO Pediatric *

12 years and above



PROX. HUMERUS ACCESS SITE
Adduct patient's arm with hand over umbilicus. One hand bisects the arm at the deltoid, while the other hand bisects the axilla anteriorly. Rotate hands inward until the thumbs meet. Palpate the surgical head of the humerus with your thumbs, then move 1cm (0.5in) upward to the greater tubercle.



PROX. TIBIA ACCESS SITE:
A: Tibial tuberosity
B: 2cm (1in) medially, towards inner leg
C: 1cm (0.5in) superior, towards knee

★ = Proximal humerus access site
★ = Proximal tibia access site



NIO Adult *

Note: Prior to deploying the **NIO Pediatric** ensure that the penetration depth indicator correlates with the patient's age. For 3-9 year olds, leave the red spacer intact. **For 9-12 year olds, remove the red spacer.**

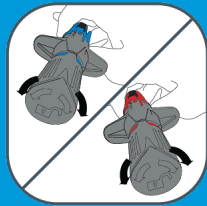
STABILIZE

With your non-dominant hand, hold the NIO by the textured dots at a 90° angle to the access site and maintain downward pressure.



UNLOCK

Unlock the NIO by rotating the cap 90° in either direction, so that the cap aligns with the trigger wings.



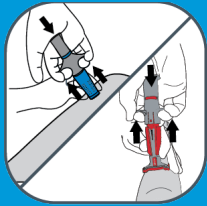
PRESS

Place the palm of your dominant hand over the cap of the NIO and apply downward pressure while your non-dominant hand stabilizes the NIO against the patient's skin.



SQUEEZE

With your dominant hand, maintain downward pressure on the cap and squeeze the trigger wings.





The NIO Infant™ is indicated for patients between gestational age of 36 weeks, with a weight of at least 5lbs (2.3kg), to patients up to 3 years of age.



NIO Infant™

Manual, quick, safe, easy vascular access from 2.3kg to 3 years old



01

01. NIO Infant™ with needle safety cap

02. NIO Infant ready to use

03. Fixation dressing to help prevent dislodgment

PRODUCT HIGHLIGHTS

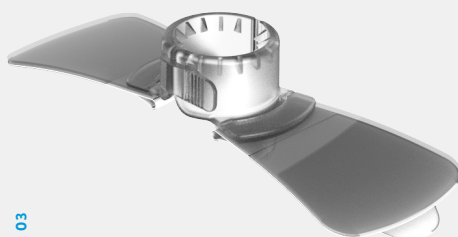
MANUAL

QUICK

SAFE

EASY

- FACILITATES RAPID VASCULAR ACCESS IN INFANT PATIENTS
- REQUIRES NO BATTERIES OR MAINTENANCE
- STEPPED NEEDLE®* DESIGN HELPS TO PREVENT OVER-PENETRATION
- POCKET-SIZED AND LIGHTWEIGHT
- FIXATION DRESSING HELPS TO PREVENT DISLODGE MENT
- STERILE, SINGLE-USE DEVICE
- NEEDLE SAFETY CAP
- 5-YEAR SHELF LIFE



03



02

- **Lightweight, ergonomic handle**
- **Manually control penetration**
- **Prevent over-penetration**
- **Prevent dislodgement**

SPECIFICALLY DESIGNED FOR INFANTS

Vascular Access in a Flash

The NIO Infant™ provides safe, rapid intraosseous access in the proximal tibia as an alternative to IV access in emergency medical situations. The NIO Infant is a manual IO device with an innovative Stepped Needle® safety design that provides graduated penetration into the bone marrow cavity to help prevent over-penetration.

The NIO Infant is ready to use out of its packaging. The device requires no batteries, no assembly, and no extra parts, allowing for rapid vascular access to be achieved.

01. NIO Infant™ individual
peel back blister pack with
fixation dressing



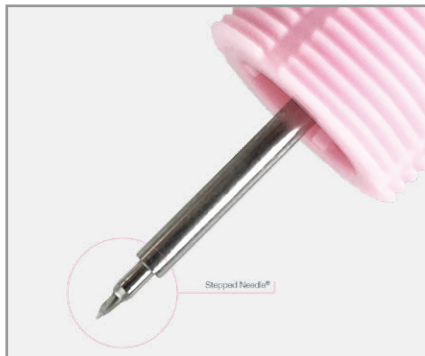


SKU.....	NIO-I
Weight	56g
Packaging	Packed individually in a peel back blister pack with fixation dressing
Safety Mechanism	Stepped Needle® 14G to 18G
Needle Gauge	18G
Needle Effective Length	15mm (0.6in)
Needle Penetration Depth....	The cannula cortex penetration section (18G) is 2.6mm (0.1in)
Shelf Life*	5 years*

Specifications

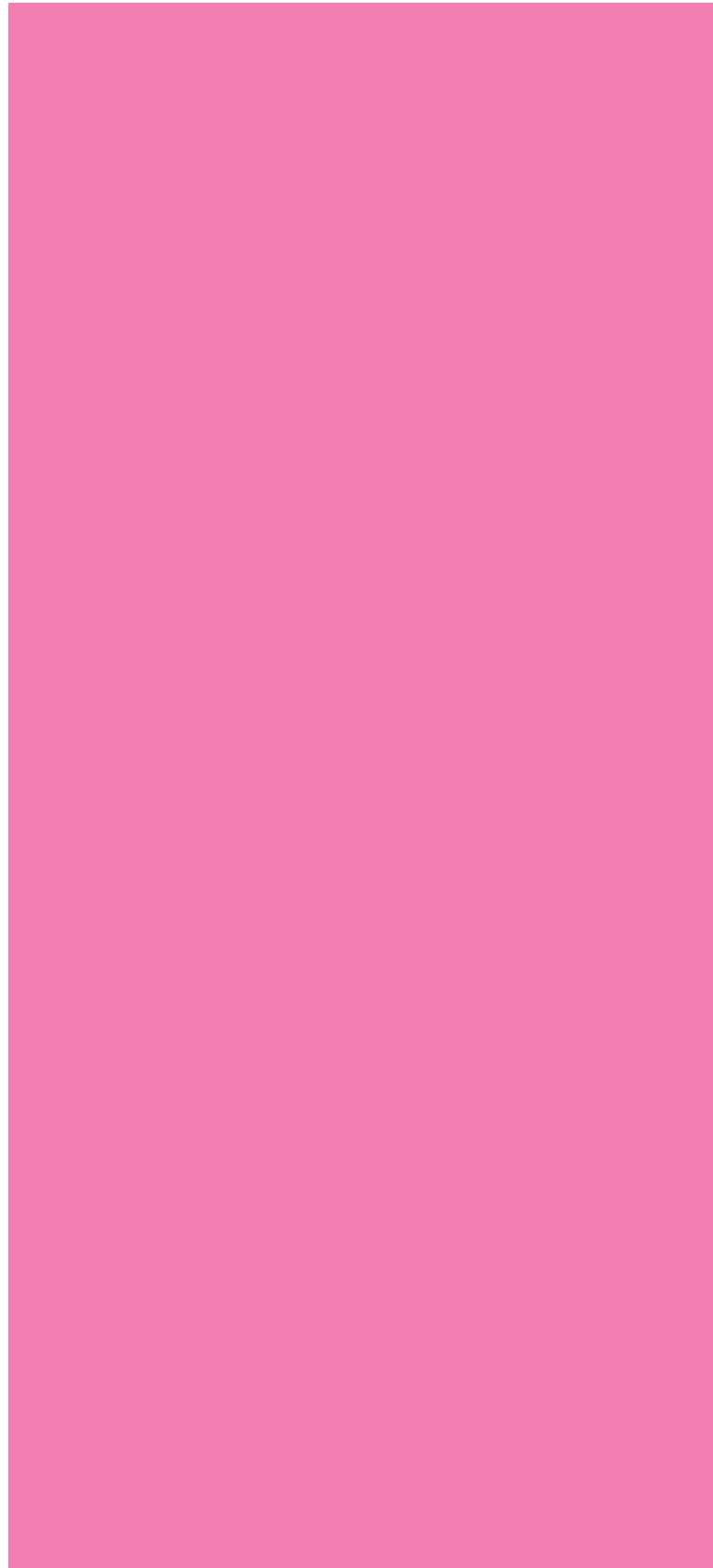
Specifications are subject to change without notice.

*From date of manufacture



STEPED NEEDLE

Stepped Needle provides sensory feedback in the form of resistance to the user, indicating that the needle is properly positioned in the bone marrow cavity, thus helping to prevent over-penetration





Vascular Access in a Flash

The NIO Pediatric™ is intended for pediatric patients ages 3-12 years old. It features adjustable needle penetration depth according to a patients age.

NIO™ Pediatric

Quick, Safe, Easy Vascular Access

When you need immediate vascular access, you can be confident that the NIO™ Pediatric is complete and ready to use. The NIO Pediatric is the quickest, most reliable intraosseous device for gaining immediate vascular access in pediatric patients.

The NIO Pediatric™ is an automatic intraosseous device designed for quick, safe, easy vascular access in **10 seconds or less***. The NIO Pediatric is compact and requires **no assembly**, making it ideal for use in both pre-hospital and hospital settings.

The NIO Pediatric is intended for pediatric patients ages 3-12 years old. Its needle depth may be changed according to the age of the patient by adjusting the needle stabilizer located at the base of the device. The needle stabilizer has protruding arrows that assist in the correct anatomical placement of the device, using the tibial tuberosity as a landmark.





CODE: NIO-P

SKU.....	NIO-P
Dimensions	148.55mm (5.9in) L 64.5mm (2.6in) W 43.7mm (1.72in) H
Weight	85.6g
Packaging	Packed individually in a peel-back blister pack
Needle Gauge	18g
Needle Effective Length	38.1mm (1.5in)
Needle Penetration Depth....	3-9 years: 14mm (Leave red spacer intact) 9-12 years: 18 mm (Remove red spacer)
Safety Mechanism	1. Rotating safety latch prevents accidental activation 2. Simultaneously compressing the device against the skin while squeezing the trigger wings activates device
Shelf Life*	5 years

Specifications

Specifications are subject to change without notice.
*From date of manufacture

PRODUCT HIGHLIGHTS

QUICK

SAFE

EASY

Semi-automatic, self-contained unit facilitates rapid vascular access. Unexposed needle decreases the risk of accidental needle injury. Redundant safety features prevent accidental activation of the device.

- ADJUSTABLE ACCORDING TO PATIENT AGE
- REDUNDANT SAFETY FEATURES
- SEMI-AUTOMATIC DEVICE
- NO EXPOSED NEEDLE
- SINGLE-USE DEVICE
- 5-YEAR SHELF LIFE
- SELF-CONTAINED

The NIO Pediatric features an innovative stabilizer hub which serves four functions:

- **Unique location arrows** aid insertion site identification
- **Needle stabilizer** assists in securing the needle to the limb.
- **Adjustable needle penetration depth** means one device can accommodate a wide range of pediatric patients
- **Mechanical stopper** limits needle depth, preventing over-penetration.



Vascular Access in a Flash

When you need immediate vascular access, you can be confident that the NIO Adult™ is complete and ready to use. The NIO Adult is an **automatic intraosseous access** device packaged for quick, safe, easy vascular access in **10 seconds or less***. No batteries. No assembly. No extra parts.

01. NIO Adult™

ergonomic design

features

NIO™ Adult

Quick, Safe, Easy Vascular Access





SKU.....	NIO-A
Dimensions.....	139mm (5.47in) L 64.5mm (2.6in) W 43.7mm (1.72in) H
Weight	56g
Packaging	Packed individually in a peel back blister pack
Needle Gauge	15G
Needle Effective Length	42mm (1.65in)
Needle Penetration Depth....	25mm (0.98in)
Safety Mechanism	1. Rotating safety latch prevents accidental activation 2. Simultaneously compressing the device against the skin while squeezing the trigger wings activates device
Shelf Life*	5 years

Specifications

Specifications are subject to change without notice.
*From date of manufacture

PRODUCT HIGHLIGHTS

QUICK

SAFE

EASY

Semi-automatic, self-contained unit facilitates rapid vascular access in under 10 seconds. Unexposed needle decreases the risk of accidental needle injury. Redundant safety features prevent accidental activation of the device. No need for additional accessories makes the NIO Adult a cost-effective solution.

- VASCULAR ACCESS IN UNDER 10 SECONDS
- MOST COST-EFFECTIVE IO SOLUTION
- REDUNDANT SAFETY FEATURES
- SEMI-AUTOMATIC DEVICE
- NO EXPOSED NEEDLE
- SINGLE-USE DEVICE
- 5-YEAR SHELF LIFE
- SELF-CONTAINED

The NIO Adult features an innovative stabilizer hub which serves three functions:

- **Needle stabilizer** assists in securing the needle to the limb
- **Mechanical stopper** limits needle depth, preventing over penetration
- **Stabilizer base** aids in the removal of the catheter



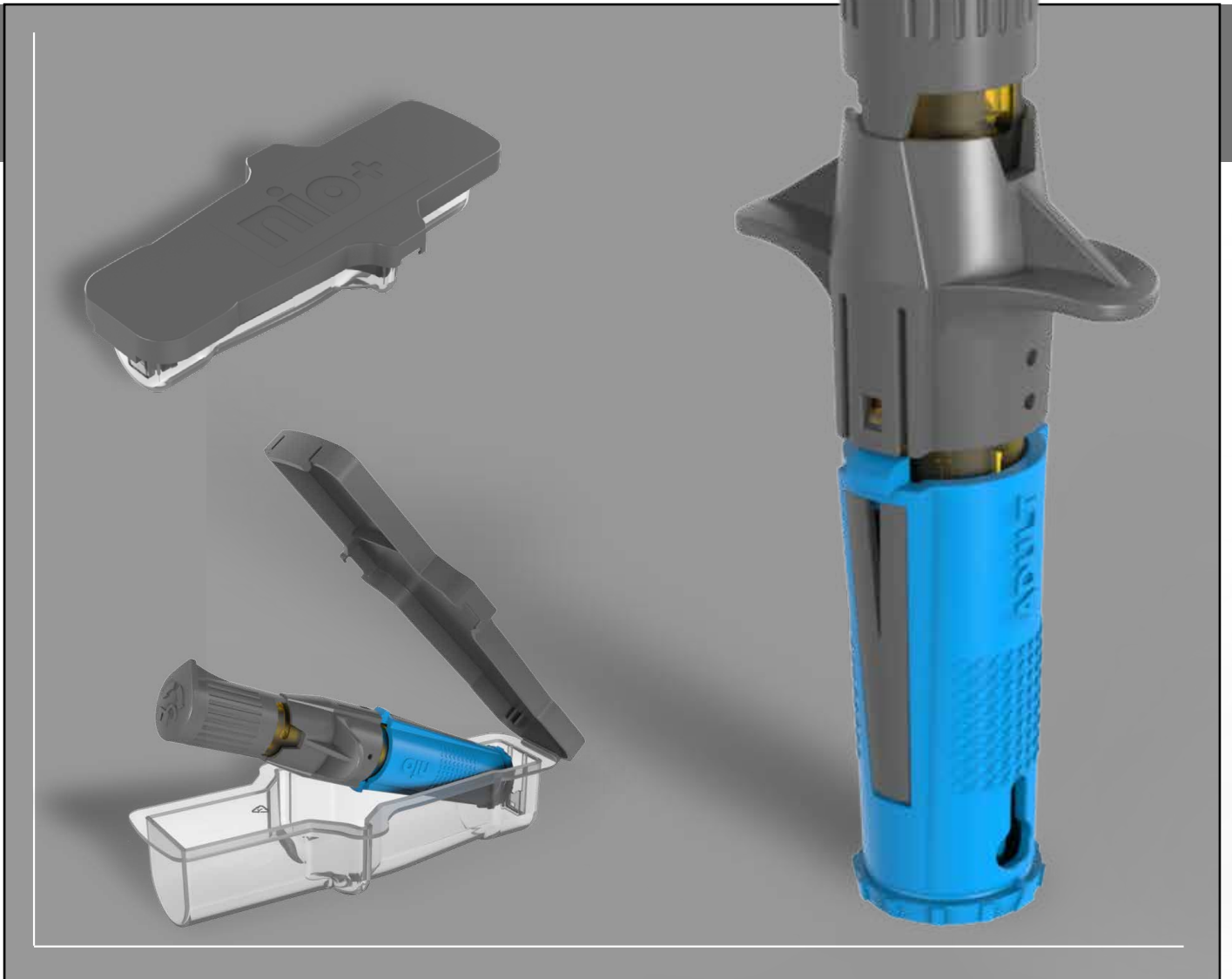
For Extreme Environments

The NIO+ is a reliable, automatic, single-use intraosseous device, robustly manufactured to operate in extreme environments under extreme conditions.

01. NIO+

Compact and durable
packaging

■ NIO™ +





SKU.....	NIO+
Size.....	Adult
Weight	Lightwiegth approx. 140g
Packaging	Compact and durable
Safety Mechanism	Dual safety features
Shelf Life*	3-years extreme temperature

Specifications

Specifications are subject to change without notice.
*From date of manufacture

PRODUCT HIGHLIGHTS

DURABLE**QUICK****SAFE****EASY**

The NIO+ is ultra-compact—multiple devices can be stored in a small medical pouch—making it a practical solution for emergency situations. The NIO+ features a reinforced polymer core, which resists elevated thermal temperatures, enabling the device to operate in extreme environments.

- COMPACT AND DURABLE PACKAGING
- PROVEN DURABILITY IN EXTREME TEMPERATURES
- VASCULAR ACCESS IN 10 SECONDS*
- MOST COST-EFFECTIVE IO SOLUTION
- SEMI-AUTOMATIC DEVICE
- NO EXPOSED NEEDLE
- SINGLE-USE DEVICE
- FULLY ASSEMBLED

* Comparison of NIO and EZ-IO intraosseous access devices in adult patients, 2016

The NIO+ has all the features of the NIO Adult™ but with the upgraded benefits of compact, durable design proven to work in and withstand extreme conditions. Ideal for emergency rescue situations and for use by the military.



Unmatched IO Simulation Experience



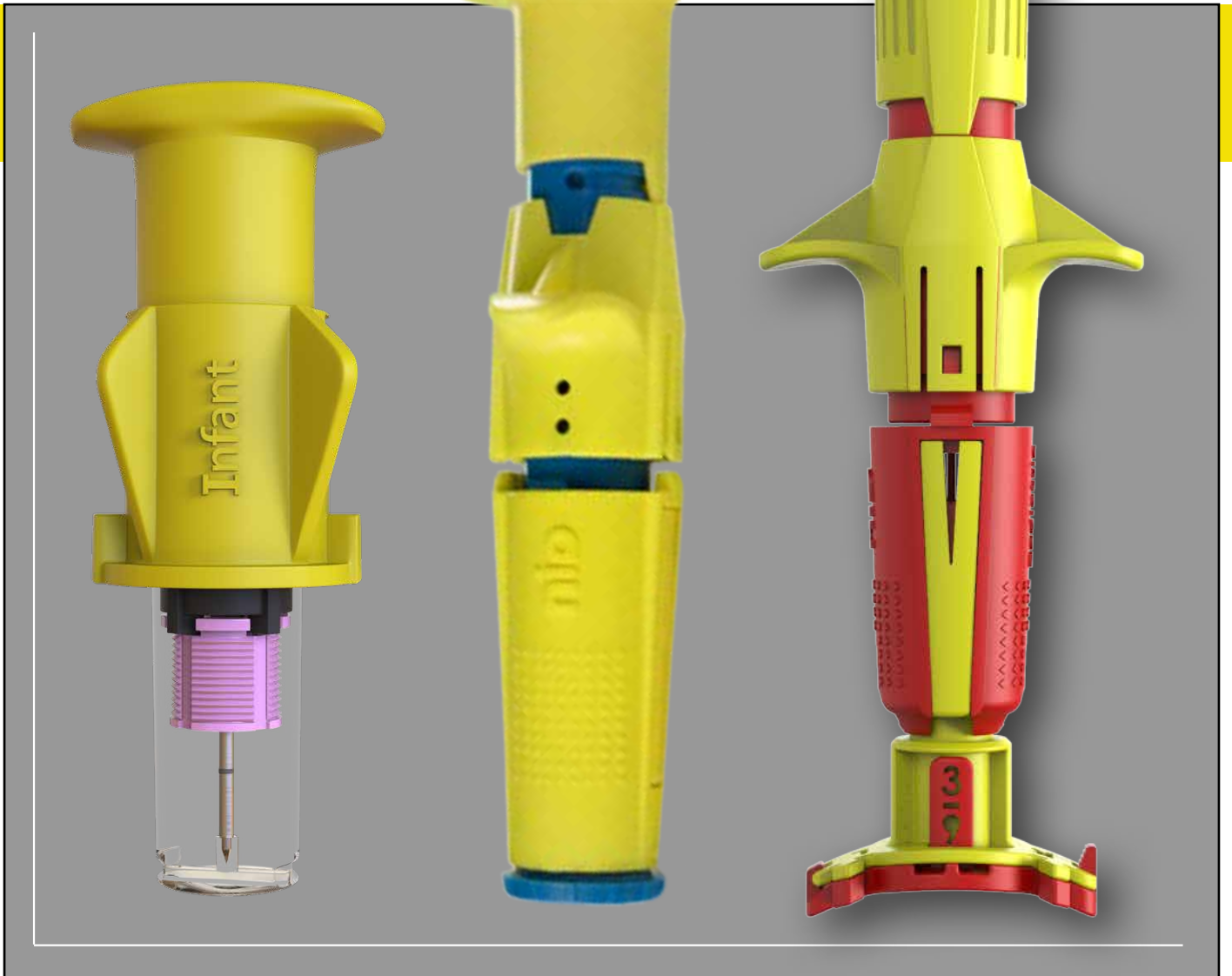
The NIO Simulation & NIO Infant™ Simulation offers an unmatched IO simulation experience.

01. NIO Infant™ Sim

02. NIO Adult™ Sim

03. NIO Paediatric™ Sim

NIO™



01

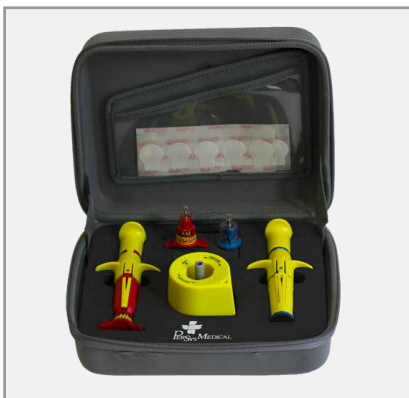
02

03

FEATURES

The NIO Simulation offers an unmatched IO simulation experience. Its reduced-length trocar and cannula allow users to not only learn but to experience locating and deploying an IO device on other users as well as on simulation manikins.

- FOAM BASE (NIO SIMULATION ADULT ONLY) ENSURES THE SIMULATION EXPERIENCE IS BOTH COMFORTABLE AND SAFE
- OPTIONAL ADHESIVE STICKER BETWEEN THE STABILIZER BASE AND ACCESS SITE ALLOWS USERS TO CHECK FOR ACCURATE LANDMARKING, ENHANCING THE SIMULATION EXPERIENCE
- REDUCED-LENGTH TROCAR AND CANNULA ENSURE SAFETY AND ALLOW FOR USER-TO-USER SIMULATION



01

IO Simulation

01. NIO needless training kit

Adult/Ped

02. NIO needless training kit

Infant



02

FEATURES

The NIO Infant™ Simulation offers an unmatched IO simulation experience. Its training leg includes two interchangeable bone models of varying bone density, which allow users to not only learn but to experience locating and deploying an IO device.

- NIO-I SIM
- INFANT TRAINING LEG
- (X3) NIO INFANT FIXATION DEMO DRESSING (NON-ADHESIVE)
- BONE MODEL WHITE – SIMULATES YOUNG INFANT BONE
- BONE MODEL PINK – SIMULATES OLDER INFANT/TODDLER BONE

THE BONE MODEL WITHIN THE TRAINING LEG CAN BE ROTATED TO ALLOW FOR ADDITIONAL TRAINING ATTEMPTS. THE BONE MODEL IS SUITABLE FOR FLUID ADMINISTRATION



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