

Intravenous Vascular Access: Building the Team

By Tina T. Smith, MS, BSN, NPD-BC, CHSE Simulation Program Manager and Dr. Jutta Novalija, MD, PhD, CHSE Simulation Program Medical Director

To save a life during a medical emergency, a medical professional may need to quickly administer various medications into a patient's bloodstream. If a patient does not have a working intravenous line in place, placing an intraosseous needle is a quick and effective option. Medical professionals rarely practice Intraosseous (IO) needle placement, but it is a skill that must be done correctly and safely when it is needed for patient care. Due to the importance of this procedure, using a blended model of pre-learning, classroom teaching and practice on simulation task trainers created the ideal teaching modality to train clinical providers.

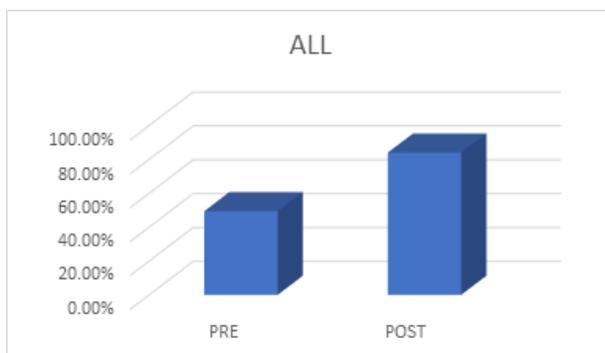


Figure 1

(SUPS). The landmark location for placement is slightly different than the reusable drill device. On June 29, 2022, the Milwaukee VA Simulation Program successfully completed the pilot for the Emergency Management Procedure Course (EMPC) – IO Vascular. The SimLEARN Innovation Center for Education (SLICE) course is being updated based upon the Milwaukee Simulation Center and learner feedback.

The Milwaukee VA Simulation Center held seven IO training courses between August 2021 and August 2022 with a total of 34 participants. The course increased the participant knowledge, which helped them perform significantly better on the post-tests compared to their knowledge before the course (49.4% correct answers before compared to 84% after (see Figure 1).

Vascular access Registered Nurses (RNs) stated having the device in the code cart with all the supplies assisted in the speed of placing the device. As IO insertion is a low volume, high-risk procedure, providers responsible for placing have

In 2018, the simulation team created a training curriculum to meet the needs of IO providers who placed IO devices during emergencies. Participants in the training learned the relevant anatomy and the insertion method.

In August 2021, modifications to the curriculum and supplies had to be made because the hospital switched to a different vendor. The device chosen was the single-use punch system, which uses the SUPS method: stabilize, unlock, push and squeeze



Figure 2: Supplies required for insertion and use



Figure 3: Actual punch device (NIO)

daily access to a training device to practice the SUPS technique, yearly simulation-based education and two to four insitu code drills that require IO placement.

Overall comments from the August IO training:

- “The training was helpful. Being able to practice on the manikin with the live products gave me a better understanding and feeling of how the device works.”
- “Very informative. Glad we were able to use actual IOs rather than just the training

device. Still feel like I need additional practice and landmarks.”

- “Great discussion on landmarks and demonstration of how to find them. Loved the firsthand training device, will be useful moving forward. Appreciated simulation, simulation manikin and a real IO device. Would love more opportunity for this.”
- “Getting firsthand experience doing the procedure was extremely helpful.”



Figure 4: Classroom set up

References*

Infusion Nurses Society and Emergency Nurses Association. (2020). *The Role of the Registered Nurse in the use of Intraosseous Vascular Access Devices* [Position Statement] 43(3) DOI: 10.1097/NAN.0000000000000369

Simonov M., Pittiruti M., Prickard C., and Chopra V. Navigating Venous Access: A Guide for Hospitalist. *Journal of Hospital Medicine* 2015; 00(00):1-1.

INACSL Standards Committee (2016, December). INACSL Standards of Best Practice: Simulation SM Simulation-enhanced interprofessional education (sim-IPE). *Clinical*

Simulation in Nursing, 12(S), S34-S38. <http://dx.doi.org/10.1016/j.ecns.2016.09.011>.

Fernandez M., Shah S., Rosenman E., Kozlowski S., Parker S., and Grand, J. Developing Team Cognition A Role for Simulation. *Simulation in Healthcare* 2017; 12(2); 96-103