

## **Simulator Limb Experience Improves Intravenous Cannulation Success Rate in Medical Students**

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**Introduction:** The authors evaluated the effect of practice with an Intravenous Simulator Limb on the success of junior medical students starting Intravenous (IV) cannulas on anesthetized patients.

**Method:** After IRB approval, thirty junior medical students (MS3), with no prior IV cannulation experience, were randomly assigned to two groups. Both groups received thirty minutes of one-on-one instruction in IV cannulation by the same senior anesthesiologist. After instruction, Group A (n=15) proceeded directly to IV cannulation on anesthetized patients requiring additional IV access. Supervisors offered all students verbal prompts but no physical assistance. Group B (n=15) practiced IV cannulation with a Laerdal Simulator Limb, and only attempted on anesthetized patients after completing 3 successful IV cannulations on the simulated limb. Group B participants, as Group A, were offered verbal prompts only when attempting IV cannulation on anesthetized patients.

**Results:** Group A achieved success in 25 of 54 attempts, or a 46% success rate. Group B achieved success in 44 of 51 attempts, or an 86% success rate. This is a significant increase of 45% for Group B, the simulator limb group.

**Discussion:** Earlier studies have shown improved phlebotomy skills with the use of simulator limbs (1), but this is the first attempt to study if the simulator limb improved success rates in IV cannulation, a notably different skill. This early, ongoing, study has shown a significant improvement in inexperienced MS3 IV cannulation success with the use of a simulator limb. This study adhered to APS/NIH Guidelines.

**Reference:** Scerbo, Human Factor, 48(1) 72-84, 2006

Group A Success	Group A Attempts	Group B Success	Group B Attempts
1	3	2	3
2	4	3	3
1	3	3	3
2	3	3	4
2	4	3	3
2	4	3	3
1	3	4	4
2	3	3	4
1	3	2	3
1	3	2	3
2	4	3	3
1	3	3	4
2	5	4	5
3	5	3	3
2	4	3	3
Total Success: 25	Total Attempts: 54	Total Success: 44	Total Attempts: 51