



## BACKGROUND

For a number of years, Advanced Practice Nursing (APN) students have taught interested 1<sup>st</sup> year medical students to perform intramuscular injections prior to their participation in community flu clinics. When several 4<sup>th</sup> year medical students needed documentation of competency in intravenous (IV) cannulation prior to participating in an elective rotation at another institution, the Director of Interdisciplinary Partnerships in the Graduate School of Nursing requested assistance from the medical school's Dean of Students. In fact, all medical students need IV therapy training prior to graduation, not just those who seek out elective rotations at other medical schools. Integration of IV therapy training into the Undergraduate Medical Education Surgery Clerkship curriculum supports the clinical objectives of the Surgery Clerkship along with the developing use of simulation within the medical school. This need led to the development of this interdisciplinary simulation education initiative.

## METHODS

The School of Medicine's Surgery Clerkship Director submitted a proposal for curriculum development funds to purchase four upper extremity IV task trainers and supplies for the UMMS Simulation Center. The APN students searched the literature for evidence for best practices to develop the curriculum. They then prepared a PowerPoint presentation, handouts, pre/post-tests, course evaluation, and developed a guided hands-on practice session utilizing venipuncture/injection arms. During each of the past two academic years, all 3<sup>rd</sup> and 4<sup>th</sup> year medical students were notified of this opportunity via email. A total of 182 students participated in one 2-hour class.

## RESULTS

One hundred twenty-three medical students completed the pre-test and 118 completed the post-test. The pre/post-test consisted of nine multiple-choice "knowledge" questions and one "confidence" question (see graphic 1). The mean knowledge-based pre-test score was 74%; the mean post-test score increased to 96%. On a four-point scale ranging from "no confidence at all" to "very confident," 16% of participating medical students rated themselves "somewhat" or "very confident" at selecting a vein and starting an IV prior to the training module. Upon completion of the IV cannulation training, 91% of the medical students rated themselves as "somewhat" or "very confident," an increase of 75%.

### Student Comments

§ *The instructors were extremely helpful and provided much information from their personal experience.*

§ *{APN} instructors were very specific and helpful. They gave constructive feedback.*

§ *It's always great to hear real-life experiences and have input from people with experience.*

§ *Very helpful to be taught by nursing {students}.*

§ *The nurses were great. They were very patient and knowledgeable.*



Graphic 1

### IV Therapy Training Module Pre/Post Test

- Which of the following sites are appropriate for IV insertion:
  - Basilic Vein
  - Metacarpal veins
  - Cephalic veins
  - All of the above
- When initially placing an IV you should try to place it distally and in the non-dominant hand if possible:
  - True
  - False
- Conditions that can affect vein status include all of the following except:
  - Previous/current IV drug use
  - Myocardial infarction
  - Diabetes
  - Peripheral vascular disease
- Use the smallest gauge that will successfully deliver the prescribed therapy at the desired rate:
  - True
  - False
- Evidence based practice recommends the use of alcohol wipes over chloraprep for antiseptic skin prep:
  - True
  - False
- If hair needs to be removed from the area prior to IV insertion a razor should be used:
  - True
  - False
- When positioning the IV catheter (non-butterfly) for insertion the catheter should be:
  - Bevel up at a 30-45 degree angle
  - Bevel down at a 30-45 degree angle
  - Bevel up at a 15-30 degree angle
  - Bevel down at a 15-30 degree angle
- Complications of IV cannulation which would necessitate removal of the catheter include all of the following except:
  - Phlebitis
  - Broning
  - Infiltration
  - Site sepsis (infection)
- Evidence based practice recommends stabilizing and dressing an IV site with an occlusive dressing:
  - True
  - False
- Please rate your self confidence at selecting a vein and starting an IV:
  - No confidence at all
  - Minimal confidence
  - Somewhat confident
  - Very confident

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## CONCLUSION

The successful establishment of this IV cannulation course has served as a prototype for offering instruction in simulated environments for a wide range of technical procedures that APN students are well-suited to offer to medical students. IV therapy insertion is just one technical skill required by medical students rendering care to the sick patient. Such procedures are often high risk and thus lend themselves to on-going instruction by APN students in a simulated learning environment for establishment of competency prior to practicing in the clinical settings.

The APN students found the experience of teaching the medical students extremely rewarding and enjoyable. Medical students' comments reflected a positive attitude towards receiving instruction from nursing students. This interdisciplinary course has also improved communication and collaboration between the Graduate School of Nursing and School of Medicine.

## FUTURE CONSIDERATIONS

The APN students are considering developing a short video of an actual IV insertion as they have not been satisfied with currently available commercial videos. Medical students have requested additional instruction for phlebotomy and urinary indwelling catheter insertion. Clearly this type of initiative has a lot of future growth potential.

Implementation of this program represents an example of cooperation between two different schools on our campus resulting in important interdisciplinary teaching experience for students in the Graduate School of Nursing while offering an essential technical skill for medical students.



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