

The use of infrared visualisation Technology to enhance preregistration student nurses for Venepuncture and Cannulation at a London Higher Institute of Education, United Kingdom

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Introduction



In the 21st Century technology is always transforming and the pace of technological evolution in health care is always advancing, Risling [2016]. It was thought that the users of technology will need only how it works. Ford [2018] discussed how the Nursing and Midwifery Council(NMC)(2018) has launched standards to shape the next generation of nurses by using a more modern and innovative approach to the way universities and their practise partners train nurses. Students are now demanding variety in the lesson. Infrared vein finder Technology is the norm in some London Acute Hospital settings regarding invasive procedures such as Venepuncture and Cannulation.

The use of Visualisation technology such as the Accuvein AV400 in Higher Institute of Education is vital in the nursing curriculum to enhance student engagement and advancement in their knowledge and skills in Venepuncture and Cannulation. According to the NICE [2014] and Chiao etal(2012) there is a life expectancy increment and patients have more procedures throughout their lifetime, vein preservation is seen as a vital long-term task. A device that helps reduce cannulation and venepuncture attempts is one step towards vein preservation(Chaio etal,2012). With technical advancement this will allow health care professionals and our nursing students in the United Kingdom to advance the ease of this skill with evidenced based technique and devices to improve vein visibility/

The use of Visualisation Technology in the United States of America and the United Kingdom has been well documented. This technology is used to help find superficial veins for Venepuncture and cannulation where venous access is difficult. According to NICE(2014) the use of this technology is uses infrared laser light is emitted by the device to show veins in real time. As a UK University it is important that our nursing and midwifery students are provided with the learning tools such this technology to enhance their own learning

Objectives

Learning outcomes are

- 1.The simulation of this clinical skill for student nurses who will come across this technology in most UK NHS Trusts.
- 2.This will allow the students who have different learning styles to engage with their peers and become more involved in learning this skill.
- 3.The use of real time technology to see veins. This links theory with practice and bridges the gaps of knowledge.

Methods

The third-year nursing students and the training Nurse assistants will have a full day session which equates to 6 hours that involves theory and practice. The session involves many group activities with a maximum of 8 students with one lecturer. The activities are

- The students in pairs are asked to visualise only ,
- look for veins in the Anterior Cubital Fossa,
- lower part of hands and the dorsal area without touching.



The aim of the activity is for the students to identify how easy or difficult it is seeing veins .

- The students are then taught how to palpitate veins and to apply tourniquet. At this point the students are shown the Accuvein AV400 ,which Middlesex University. The device uses infrared red to highlight veins.

Throughout the session please the students are continuously practicing how to palpitate and apply the tourniquet using hand manikins.

Key findings in introducing Visualisation technology in class1

- 1.Written feedback after the session were very positive. Verbal feedback from other Lecturers and students very positive and students who had not attended the sessions communicate what their peers enjoyed the about the session. communicating with the Program Lead
- 2.The student nurses were “astonished” how the technology could show their own veins in real time during the session.

Written Feedback by the students

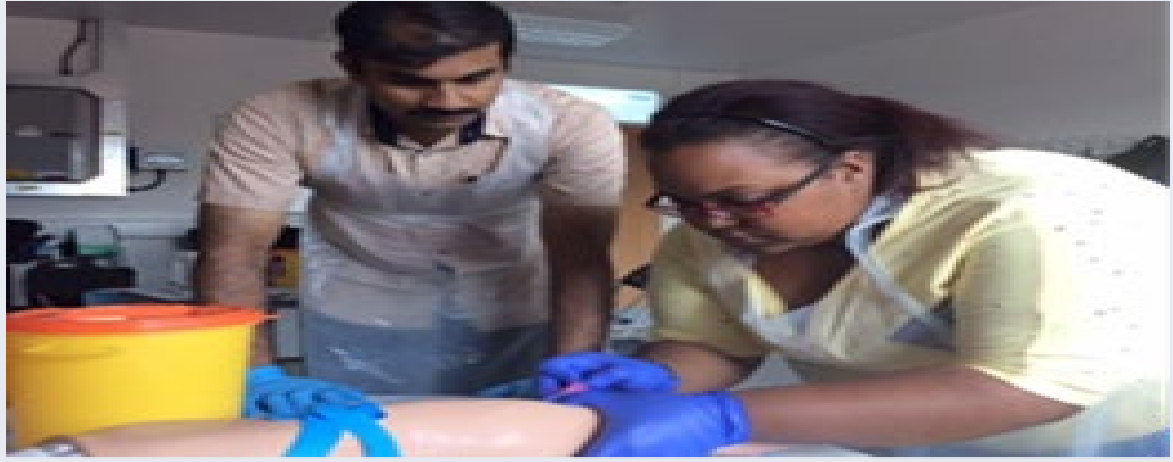
- “the sessions were very interactive and informative “
- “Great to know there is Technology to find difficult veins”
- “I am really happy that this has finally been included in the curriculum. It would have been better to have this end of year 2 or early year 3 to get practice.
- “The use of visualisation technology in cannulation and Venepuncture is great .I was able to see my own veins”

Benefits of Visualisation Technology

According to Risling [2016] nurse educators are encouraged to consider the roles of technology. Student nurses should be offered ongoing educational opportunities to enhance a wide spectrum of professional skills. It must be noted that in the next 5 to 10 years student nurses will certainly inhabit a very different practice environment and technology will be key in this transformation Middlesex university has recently started teaching venepuncture and cannulation to nursing associates and Adult student nurses in January 2017

Advantages of the Infrared vein finders

- Avoid valves and bifurcations
- Verify vein patency by watching veins refill
- View during cannulation with hands-free options
- Patient study reveals that vein illumination improves satisfaction



Middlesex University had the first Student nurses and Training Nursing Assistants receive the training using this technology in 2017. This training will meet the NMC Standards: use evidence-based practice approaches to undertake the following procedures 2.2 undertake venepuncture and cannulation and blood sampling, interpreting normal and common abnormal blood profiles and venous blood gases. All the students received attendance only certificates ,but not allowed to practice until they qualified. .

Conclusion

The use of Infrared Visualisation Technology is an integral part to student learning and raise the awareness that this technology is available in Trusts across the United Kingdom . The next phase for Middlesex as part of the pedagogy for this session is the introduction of Ultrasound for students to be aware of this technology that will be used for DIVA [Difficulty in Vascular Access] Patients , thus reducing the number of attempts for Venepuncture and Cannulation. Our students will reflect on mistakes in our sessions.



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