The impact of a clinically-orientated approach to teaching physics in ultrasound to sonography students

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Background

It is recognised by professional bodies (e.g. CASE[1]) that student sonographers need to be educated in the science and technology of ultrasound equipment, both for patient safety and to obtain the best diagnostic image possible. Sonographers who study ultrasound physics are known by teaching practitioners to have difficulties in comprehending the topic[2]. The purpose of this action research was to evaluate if deeper learning might be achieved through more engaging activities which focussed on active learning, and incorporated stronger links to clinical applications.

Method

A review of current ultrasound physics teaching methods was conducted via peer review. The student's preconceptions were explored using a survey. A newly designed module was purposefully incorporated small group tutorials led by members of the academic team and practical ultrasound lab activities. The impact of this intervention was evaluated via student feedback.

Results

The majority of respondents had negative experiences learning ultrasound physics. Following the intervention, students generally felt they had an improved understanding of ultrasound physics and technology and that they were better equipped to apply this to their clinical work.

Conclusion

This action research adopted qualitatively confirmed that the more engaging methods has improved student's perception of studying ultrasound physics and the belief that physics does indeed apply to their work as clinical practitioners. Overall, this makes students more likely to apply these principles in clinical practice, thereby aiding the development of safe and competent practitioners. Future studies can expand this approach to larger cohorts of students.

References

1. Consortium for the Accreditation of Sonographic Education (2015) *CASE Validation and Accreditation Handbook*. Available at: http://www.case-uk.org/handbook/ (Accessed: 17th January 2013).

2. Oates, C.P., 2015. Reviewing the curriculum for physics and technology in postgraduate sonography courses. Ultrasound 23, 42–47. doi:10.1177/1742271X14567499