A research project to design, implement and assess the effectiveness of a sole eLearning module to prepare non-medical healthcare practitioners to report nuclear medicine bone scans

by

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Abstract

The premise for this research initially stemmed from a perceived crisis facing the provision of the nuclear medicine service within the United Kingdom, the possible impact posed by the shortage of nuclear medicine clinicians and the untapped potential of a body of non-medical healthcare practitioners working within the nuclear medicine sector to whom recognised additional roles, such as reporting of images, may sensibly be delegated. Yet, despite the support by various professional bodies and colleges, uptake is not widespread and appears to be ill provided for in terms of educational programmes.

From an educational perspective, with ever advancing technology and the ubiquity of web based resources, eLearning within healthcare is still in its infancy. Certainly its ability and flexibility to reach geographically diverse populations of learners, is undisputed, yet whilst advantageous to the professional learner in accessing material away from a restricted campus based environment, its efficacy to teach a skill, or competence, and indeed to translate this to clinical practice remains largely unproven.

With both these issue in mind, the project question was posed as to whether it was possible to establish the efficacy and credibility of an eLearning resource to prepare and support the training of non-medical healthcare practitioners working within the field of nuclear medicine in reporting of bone scans.

Research aim and method
To design, implement and evaluate the impact/effectiveness of a solely e-based learning module to prepare non-medical healthcare professionals to report nuclear medicine bone scans and to ascertain its application as an educational programme for a wider audience.

Using an experimental instructional design method, a module was created using various software packages accessible through a virtual learning environment provided by the University of Portsmouth. This enabled the uploading and provision of academic content, interactive elements and an image database

through which a 'real-to-life' learning package, similar to the clinical situation, could take place.

Volunteers were invited to take part in the trial, working their way through a series of knowledge and competence based assessments (formative and summative) and to participate in two surveys at the beginning and on completion of the module. Additional data was gathered through quantitative features embedded within the learning management platform.

Findings

Of thirty-three volunteers recruited to the programme, sixteen completed all the advised summative elements and surveys. From a functional design perspective, the module was well received, pinpointing the benefits and need for this type of resource within the nuclear medicine sector, although the programme would benefit from further refinement for more widespread commercial use.

The eLearning programme clearly demonstrated knowledge gain, although its ability to impart a new skill/ competence, in terms of reporting, can only be cautiously expressed. Those with less experience showed the most marked improvement and as a cohort, there was statistical improvement in discerning normal from abnormal appearances. None of the cohort reached the desired level of concordance in the report writing elements with the reference standard reports, although this may have been constrained due to programme limitations. There was, however, sufficient evidence to suggest the programme may be potentially suitable as a self-audit tool for reporting, or as a general continuing professional development resource.

Conclusion

eLearning holds widespread appeal to the practising healthcare professional in terms of its ability and flexibility to deliver education, suiting individual learning needs. It should be easily navigable, stimulating and interactive and wherever possible mimic the professional context.

The effectiveness of this programme to prepare non-medical healthcare

professionals to acquire a new skill/competence remains outstanding at this time, although there are indications of its influence towards learning.

Some of the learning was clearly transferrable to the clinical setting and could be used for creating a much needed and useful resource for audit and/or continuing professional development purposes. There is also some indication it may be beneficial to professional advancement.

Ultimately, in line with European and national recommendations, eLearning should be allowed to evolve through closer collaboration between HEIs and the private sector, in creating sustainable eLearning resources, maximising its effectiveness for use both nationally and potentially, internationally.