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**Analysing the introduction of new technologies within the hybrid imaging**

£2,361.00 awarded

**Lay Summary**

This research study will analyse the impact of introducing hybrid imaging technology (SPECT/CT and PET/CT) within nuclear medicine practice. The hybrid-imaging workforce has developed as a result of the clinical availability and utilisation of multi-imaging systems, capable of providing functional and anatomical information within a single environment. The research will focus on potential cultural changes, workforce development requirements and emerging professional identities for radiographers within the nuclear medicine environment.

Although hybrid imaging systems have been available for over ten years, their introduction has provided new imaging pathways for traditional examinations, increasing overall accuracy rates and diagnostic quality. The introduction of new hybrid imaging equipment and associated software has required the nuclear medicine workforce to further develop skills and competencies and operate within a new culture, dealing with transmission imaging (X-ray source) in addition to conventional transmission imaging (gamma sources).

At present there is a lack of educational guidelines and core competencies for radiographers working within a hybrid imaging environment. The Society and College of Radiographers (SCoR) have produced a draft learning and development framework (SCoR, 2010) for professionals working within a hybrid imaging environment and although this document covers the fundamental levels of practice, there has been no national research evaluating the impact of hybrid imaging technology on the nuclear medicine workforce. This research aims to evaluate the future training and workforce requirements of nuclear medicine practitioners working within a hybrid imaging environment and influence the development of a competency based framework for clinical practice in the United Kingdom (UK).

**Rationale**

Hybrid imaging in nuclear medicine is providing an opportunity for radiographers to develop their core practitioner skills and create new multiprofessional working opportunities. Analysing the cultural and professional changes to the existing nuclear medicine workforce will provide a focus for future educational strategies in the UK and identify possible multiprofessional opportunities. This will ultimately result in an increase in research/service development publications, raising the profile for radiographers in nuclear medicine and provide a clear training strategy in hybrid imaging and follow on future research projects.

The proposed research project fits within the "service delivery and organisation" programme area and will specifically evaluate the sociological aspects of introducing hybrid imaging technology and associated software on the radiography workforce. By evaluating the cultural changes associated with the introduction of hybrid imaging technology, a fluid understanding of the emerging roles, responsibilities and training requirements will be available. This will provide the CoR with an informed opinion of the emerging "hybrid imaging" workforce and potential multiprofessional relationships. Providing a flexible, skilled hybrid imaging workforce is integral to service/workflow delivery in the modern NHS.
Description of the project:
Principle aim of the study

The aim of the research study is to analyse the introduction of new imaging technologies within the nuclear medicine workforce. The research will focus on the potential cultural changes and social meanings within this workforce, following the introduction of new technologies and the subsequent development of professional identities and interprofessional working relationships.

Primary research question:

What, if any, are the cultural changes and associated workforce development requirements of radiographers working in a hybrid imaging environment?

Secondary research questions:

1) How do new technologies impact on the professional development of the hybrid imaging workforce and what are the challenges of introducing new imaging pathways?
2) What are the training and educational challenges of incorporating new technologies specifically within hybrid imaging workforce?
3) How technologically focused is a radiographer working within a hybrid imaging environment and does this impact on the level of humanistic patient care?

Outcomes:

The outcomes from the proposed research will contribute to the development of an educational framework for hybrid imaging practitioners and a career progression structure within an emerging workforce. Being able to establish whether the introduction of new technology in the hybrid imaging environment is socially constructive or deterministic will enable practitioners to further understand their working practices and identify the developments of their roles and responsibilities. Data collected and analysed from observational studies, interviews and reflective blogs will generate key themes focusing on the learning and development requirements of radiographers working within hybrid imaging environments and those who will be experiencing a transitional period of change in the future. The Workforce Review Team (WRT) have previously identified occupational shortages within nuclear medicine (WRT, 2009) and mapping the learning and skill development is important for future strategic workforce planning.

Review of the literature and identification of current gap in knowledge:

The modern NHS requires health care professionals to gain new skills effectively whilst delivering patients’ services using evidence-based approaches (NHS, 2010), which may involve technological advancements. Central themes that have emerged from nuclear medicine practitioners (service users) attending the hybrid imaging module at the University of the West of England (UWE) emphasise the scale of transformational change related to service redesign, evolving traditional clinical techniques and appropriate training for the emerging hybrid workforce. The interactions between work practice, emerging technology and changes within professions and workplaces have not been sufficiently analysed (Crump and Pfeil, 1995), but have led to the introduction of new ways of communicating, engagement, learning (Bortot et al, 2004) and independent working practice (Larsson et al, 2006). This is coupled with the necessity to standardise patient pathways across the UK and service improvement strategies to deliver quality patient services (DH, 2009).

An exploration of the potential cultural changes within this relatively small scale workforce has not been conducted and contrasts with healthcare areas such as nursing and radiography, where technological changes have re-shaped cultural working practices and undergone subsequent analysis (Schoenhofer and Boykin, 1998; Simmons, 2007; Fridell et al, 2009). Barley (1986), Murphy (2001), Deutschman (2005) and Larsson et al (2006) reported changes in working cultures of other departments within the acute and community health care environments.

Murphy (2001) explores the potential workforce development required with the introduction and “professional acceptance” of new technology within the clinical environment and the requirement for health care professionals to collaborate and consolidate their expertise in
References:


Deutschman M., (2005) Ethnographic study of nursing home culture to define organizational realities of culture changes, Journal of Health and Human Services Administration, Volume 28, 2, pp 246-81


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