Impact case study template (REF3b)

Institution: Teesside University

Unit of Assessment: Business and Management Studies (UoA 19)

Title of case study: Developing guidelines for the implementation of a European Union (EU) directive: The role of the Medical Physics Expert

1. Summary of the impact

Working with colleagues from across Europe, CfSL examined the differences between European countries in the education and professional recognition of Medical Physics Experts (MPEs), and the challenges associated with cross-border harmonisation. The MPE project has finalised recommendations on the education and deployment of MPEs for the European Commission's Directorate-General for Energy and Transport. The results of the project are being taken forward in an FP7 coordination project (see below) to develop a pilot training programme for MPEs in Diagnostic and Interventional Radiology. The main user groups who benefit from this research predominantly include hospitals and clinics, medical equipment manufacturers, regulating bodies, with the patient being the ultimate beneficiary.

2. Underpinning research

The key researchers on this project were its Principal Investigator (PI) *Blenkinsopp*, appointed at Teesside in 2007 and conferred as Professor in 2013 (he subsequently left Teesside in May 2013) and *Gillett* (a successful CfSL PhD student completion: now at York). The project was made up of multiple work packages and CfSL and the PI led on one of these. The research team were the only social scientists on the whole project and provided input and analysis across all the work packages through a steering committee for the overall project.

The underpinning research was based on a project funded by the European Commission ('European guidelines for the Medical Physics Expert (MPE)', issued as tender TREN/H4/167-2009), which examined the role of the Medical Physics Expert (MPE) in EU member countries and EU candidate countries. The project aimed to understand the diversity of current practice and to develop guidance which would provide a basis for threshold standards in matters such as education and training, staffing levels, and deployment. In order to capture differences between the practice of medical physicists from different countries, a large scale survey and interviews were carried out. Eight hundred and twenty-six medical physicists were surveyed across 40 countries and interviews were conducted with 25 stakeholders such as medical physicists, regulators, and equipment manufacturers. This allowed country profiles to be developed in terms of practice on education, training and deployment of MPEs.

The findings highlighted three critical issues (http://ec.europa.eu/energy/nuclear/events/2011_05_09_mpe_workshop_en.htm):

- There is great variation in the extent to which different countries' systems allowed for worker mobility (i.e. accepted MPEs trained in other countries)
- The level of qualification required to work as a MPE varies between countries, contrary to the normal expectations coming out of the Bologna agreement
- There was evidence of common areas of weakness in terms of implementing the requirements of the Medical Exposures Directive.

The underpinning research took the form of three outputs. Output 1 was the final report of the EC funded project; output 2 addressed the issue of the lack of a recognised 'brand' for MPEs; and output 3 discussed methodological issues with conducting the research in English with non-native English speaking participants.

3. References to the research

1. Report from project 'Guidelines on Medical Physics Expert' (2012). Funded by the European Commission.
http://portal.ucm.es/c/document_library/get_file?uuid=7f372d5a-04c2-469c-b5c1-afc1d0effe4d&groupId=35627

2. Gillett, A. and Blenkinsopp, J. (2013). Professionalisation and The Need for A Consistent and Positively Recognised 'Brand': The Case of Medical Physics Experts in Europe. *Paper presented at the CEGBI/CSWL Summer Conference*, University of York.

3. Blenkinsopp, J. & Gillett, A. (2013). Methodological issues in undertaking transnational surveys in English: lessons from an international study of working practices in medical physics. *Paper presented at the European Academy of Management conference*, Istanbul.

All outputs underwent rigorous peer review. Output 1 was funded by the European Commission; outputs 2 and 3 were presented at a prestigious meeting and the premier European management conference respectively. Output 3, in particular, was peer reviewed for the EURAM conference, the annual conference of the European Academy of Management (http://www.euram-online.org).

4. Details of the impact

The MPE project produced recommendations and proposed EU guidelines on the education, training and deployment of MPEs; these were considered by the November 2012 meeting of the Group of Experts of the European Commission, established under Article 31 of the European Atomic Energy Community Treaty [1]. These recommendations include a qualifications framework to support harmonisation of education and training, and recommended the introduction in each Member State of a formal mechanism for recognising by registration an individual's expertise and status as an MPE. It was also recommended that an MPE's education and training be documented as 'portable' evidence of their professional status. Recommended staffing levels were also set for clinical settings.

Engagement activity with national stakeholders focused on raising awareness of the study, its aims (including implications for core EU aims such as enhanced professional mobility between countries) and subsequent outcomes. The purpose of this engagement activity was to prepare clinical and regulatory audiences for the challenges of implementing the project's recommendations. Examples include communications to the Czech Association of Medical Physicists [2], and the inclusion of the project in 'Contrôle: the French Nuclear Safety Authority Review', as part of a broader update on 'European Commission activities on radiation protection of patients' [3]. The final project workshop was also covered by professional bodies, such as the Institute of Physics' Medical Physics Group in the UK [4]. During this workshop, Blenkinsopp presented one paper and co-authored two further papers which were presented.

The outcomes of the study will be taken forward by the new Framework Programme 7 (FP7) coordination project, awarded within the REF impact census period with a start date of 1st August 2013 [5]. A different European Directorate from the original commissioning Directorate has funded this follow up project, 'European Training and Education for Medical Physics Experts in Radiology' (EUTEMPE-RX, project 605298), which specifically mentions the project in this case study as being the building block for the new project. The new project aims to build upon the qualification framework developed as part of the MPE study to develop a pilot training programme for MPEs in Diagnostic and Interventional Radiology, in response to the differing levels of expertise and facilities for MPE training across the EU, as highlighted by the report on the survey carried out as a part of the MPE project (http://portal.ucm.es/c/document_library/get_file?uuid=7f372d5a-04c2-469c-b5c1-afc1d0effe4d&groupId=35627).

The EUTEMPE-RX project has been awarded FP7 funding of €1.658 million, against a total project value of €1.879 million. Partners include clinics, hospitals and health bodies such as the Royal Surrey County Hospital NHS Foundation Trust in the UK, German hospital Klinikum Braunschweig gGmbH, and the European Federation of Organisations for Medical Physics (EFOMP), a partner in the MPE project. The results of the MPE project are therefore being used as evidence to support the further development of MPE training and the harmonisation of standards by relevant clinicians and organisations active in this field across Europe, with FP7 funding committed to this work by the EC.

The significance of the impact is best understood by considering the timescales involved. The Council Directive 97/43/EURATOM was passed on 30 June 1997, forty years after the EURATOM Treaty, and for the first time enshrined a definition of the Medical Physics Expert. It might be assumed this would have settled matters, but in fact it merely served to trigger a fifteen year debate about how the definition should be interpreted, a debate which failed to come to any consensus view, despite extensive European-wide efforts from bodies such as EFOMP, to the considerable frustration of policymakers whose preference was to be guided by the medical physicists. The MPE project, by finally producing hard data on the diversity of practice (in education and training, deployment, professional registration etc.), was able to develop concrete, evidence-based proposals that could form the basis for consensus on a way forward. The project does not mark the end of the process, but it can legitimately be described as 'the end of the beginning', and has provided the basis upon which the EC is now prepared to invest almost €2 million to follow through on the recommendations coming out of our research.

5. Sources to corroborate the impact

[1] The minutes of the Expert Group meeting and the minute referring to the MPE project is on page 7 (http://ec.europa.eu/energy/nuclear/radiation_protection/doc/art31/2012_11_report_goe.pdf); and the guidelines produced as part of the project: http://portal.ucm.es/c/document_library/get_file?uuid=a7b07af5-dad5-488f-aa23-6134b5e9732e&groupId=35627.

[2] Letter introducing the project to the Czech Association of Medical Physicists: http://www.csfm.cz/userfiles/file/Medical_physics_expert/MPE-Letter.pdf

[3] Article in Contrôle: the French Nuclear Safety Authority Review, no. 192, July 2011, p86: http://fr.calameo.com/read/00021916457d8962af825

[4] The Institute of Physics' Medical Physics Group newsletter, including overage of the final workshop: http://www.iop.org/activity/groups/subject/med/news/archive/file_56858.pdf

[5] Details of the EUTEMPE-RX project can be found at: http://cordis.europa.eu/projects/rcn/109487_en.html; http://www.eutempe-rx.org/