

Title : The impact of digital imaging on patient radiation dose in diagnostic radiography: A survey of standard exposure factors used for radiography across Europe.

Methodology : A quantitative questionnaire survey of standard operating parameters used for 3 common examinations will be performed across Europe. The 3 examinations include

- (i) Postero Anterior (PA) Chest,
- (ii) Antero Posterior (AP) Abdomen
- (iii) AP Pelvis

All the education institutes who are affiliated members of the European Federation of Radiographer Societies (EFRS) have been identified. Clinical contacts will be approached in each country through the SCoR in the UK, the EFRS and the Higher Education Network for Radiography in Europe (HENRE). Ethical approval will be sought from the University of Ulster Research Filter Committee prior to the study commencing to ensure scientific rigour of the study is maintained. Individual Trust R&D governance approval will be sought in the UK and where required as the regulations are different across European countries (this will be determined when the study commences). It is not possible to list the individual hospitals at this stage but the radiography education institutes who are affiliated members of EFRS will be used as initial contacts (please see attached). These contacts will help to identify appropriate hospitals so we can ensure a representative sample to avoid selection bias. These contacts in turn have named clinical contacts with several hospitals and can advise us of the correct professional body to approach and the correct research governance regulations in each country (again this can only be determined once the study has begun). These education institutes include the following; Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, Hungary, Ireland, Italy, Latvia, Malta, Netherlands, Norway, Portugal, Serbia, Sweden, UK (n=17). All recruitment and data collection will be performed by the co-applicants who are members of the European Centre for Applied Radiography Research and Scholarly Activities (ECARRSA). Regular meetings will be held both online and face to face to ensure data collection is progressing and identify countries which require follow up. In the event of questionnaires requiring translation into a different language, advice will be sought from colleagues in Holland and additional help bought in where required. The recruitment process will be performed through the professional bodies for each country via the SCoR in the UK, the EFRS and the HENRE network. If it is not possible to recruit participants from the professional bodies and EFRS links, we will seek Research Governance Approval from IRAS and the University of Ulster will act as sponsor. Data will be collected with the aid of an email survey and postal questionnaire from 102 hospitals in countries across Europe who are members of the EFRS. Data will be sampled from six hospitals per country, this will include 3 university hospitals and 3 district general hospitals where possible. It is possible that some countries may not have 6 hospitals, hence a return rate of 60% will be considered acceptable as this data does not currently exist and will make a valuable contribution to our existing knowledge. Follow up surveys will be used for non responders. Data collection will also include the make, model and age of equipment used and academic level and type of training achieved by radiographic/imaging staff in the relevant hospitals. All data will be collated and analysed to identify the full range of exposure factors/operating parameters currently used across Europe. Any variation in level or type of educational training will also be investigated.