Purpose or Objective: The aim of the Patient Safety and Quality Control Working Group of Spanish Society of Radiation Oncology (SEOR) was to analyse if the current Spanish legislation (SL): Royal Decrees 1566/1998 (Quality Criteria in RT) and 815/2001 (Justification of medical exposure to ionizing radiation) include the international recommendations on PS, and to implement appropriate measures to correct any possible deficiencies in this regard.

Material and Methods: The following documents were reviewed: “Towards Safer Radiotherapy”, “Radiotherapy Risk Profile”, “Failure Modes and Effects Analysis (FMEA)”, “Preventing Accidental Exposures from New External Beam Radiation Therapy Technologies”, “Safety in Radiation Therapy: A Call to Action meeting recommendations”, and “Safety is not accident” (2nd ed.). From these documents, 11 topics were selected to compare with obligations regarding PS in RT specified in the SL: qualification, training, staffing, documentation/standard operating procedures, incident learning, communication/questioning, QC and preventive maintenance, accreditation, map of processes/risk and prospective risk assessment, strategies and tools development for minimizing risks and safety culture.

Results: SL include none of these issues: Relationship between staffing criteria and PS, Specifications about the number and quality of the documents that depend on a map of processes, Incident tracking, analysing, sharing and reporting adverse events (errors and near misses) in order to learn from them and improve PS. Its challenges are:

- The commonest volumes assessed were CTV (n=47) and GTV (n=38). CT alone (n=91) was the predominant dataset used for contouring. 81 studies used statistical tests to analyse the significance of their results. 31 studies evaluated the effect of additional imaging on IOV, with PET shown to reduce IOV in lung and rectal cancers and lymphoma but not head and neck cancers. There were mixed results for the benefits of MRI in brain tumours and breast cancers but it reduced IOV in OAR delineation. 25 studies evaluated the dosimetric effects of IOV, with most studies showing differences in OAR doses but the effect on PTV coverage was variable. 25 studies evaluated the effect on an intervention to reduce IOV. IOV was significantly reduced in 7/9 studies evaluating guidelines, and all 6 studies evaluating the provision of an autocontour to edit. Teaching interventions showed significant improvement in IOV in 4 studies, improvement without statistical analysis in 4 studies and no difference in 1 study.

Conclusion: Despite the large number of studies evaluating IOV, only a minority evaluated the dosimetric consequences of this or the use of interventions to reduce this. Additional imaging datasets reduced IOV in some cancer types. Guidelines or protocols and the provision of an autocontour reduced IOV in volume delineation.
energy deposition and particle fluence. The software package, written in Matlab, incorporates interaction sampling methods employed in general-purpose Monte Carlo codes. Users select the incident particle type, energy, target material and (optionally) particle cut-off energies. Modes of operation include; 3D views of particle tracks from a broad beam incident on selected media, views of interaction probabilities and outgoing particle energy and direction, or energy deposition and charged particle fluence scored as a function of depth for a user-defined number of incident particles.

In addition, the ‘physics’ underlying radiation transport can be modified, by ‘switching off’ multiple Coulomb scattering, delta-ray production and radiative energy losses, in order to observe the effect this has on energy deposition and so gain a greater understanding of the physics involved.

Results: The MC teaching software, ‘VisualMC’, has been packaged as a stand-alone application and made available to university students via Citrix. Practical sessions are used to introduce students to the software, after which the software can be accessed remotely by students to perform their own radiation transport ‘experiments’ to gather results for assessed assignments.

Conclusion: A MC-based software package has been developed to support the teaching of radiation interactions and radiotherapy dosimetry. The software has been incorporated into academic programmes at undergraduate and postgraduate levels, providing practical exercises for students of radiotherapy and medical physics.

Purpose or Objective: Radiation technology is expanding at an exponential rate. Accompanying discoveries in molecular and radiation biology there are multiple developments in both hardware and software solutions. This expansion in information presents huge challenges to radiotherapy professionals to maintain adequately appraised in new data. Continuing Professional Development (CPD) is threatened by the huge volume of information and lack of financial and physical (workforce) resources to support study. Social media (SoMe) provides a new tool for medical education which is free and open access (FOAM, foameducation.org). Twitter presents a tool for CPD which can usefully connect multidisciplinary professionals in radiation oncology.

Material and Methods: The hashtag #radonc denotes information on twitter that is pertinent to radiation oncology. A similar #medphys tag is used for specific medical physics subjects. On a monthly basis a #radonc journal club is held on the twitter platform. A paper is discussed in an open dialogue. The paper under discussion is introduced on twitter and via the www.radiationnation.com website. At the end of a week of asynchronous comment a hosted discussion is held for one hour with the paper’s author. Participation is free and open to all.

Results: The #radonc journal club has been in place since 2014 and grown in participant numbers. In July 2015 the journal club had 86 participants from the USA, Canada, Australia, UK, Spain, Philippines, and Saudi Arabia. Over 600 tweets were sent which created over 1.5 million page impressions (symplr.com). Participants have mainly identified themselves as Radiation/Clinical Oncologists although there have been strong contributions from medical physicists, RTTs and patients and their advocates. The journal club continues with plans to host multiple timed chats to cope with demand from users in separate time zones. Further effort is being spent on using contributors to #radonc to provide SoME sourced FOAM to be hosted on the Radiation Nation website.

Conclusion: The #radonc twitter club is a successful, free, International initiative to use social media to promote discussion and interaction in radiotherapy education.

Electronic Poster: Brachytherapy track: Breast

EP-1957
Partial breast irradiation with brachy- and teletherapy: comparative dosimetry of treatment plans
G. Stelczzer1,2, C. Pesznyák1,2, N. Meszáros1, C. Polgár1, T. Major1
1National Institute of Oncology, Radiotherapy Centre, Budapest, Hungary
2Budapest University of Technology and Economics, Department of Nuclear Techniques, Budapest, Hungary

Purpose or Objective: To compare the dose distributions of partial breast irradiations in treatment plans of high dose rate multicatheter brachytherapy and intensity modulated radiotherapy with special respect to dose to organs at risk.

Material and Methods: 15 patients with early-stage breast cancer treated with interstitial partial breast brachytherapy (BT) irradiation were selected for the study. The total dose was 30.1 Gy given by 7 x 4.3 Gy fractionation. Target volume and organs at risk (non-target breast, contralateral breast, both lungs, skin, ribs and heart for left sided lesion) were outlined and treatment plans were made using geometrical and graphical optimization with Oncentra brachy (Elekta) planning system. The PTV was created around the resection cavity with a margin of 20 mm minus tumor-free surgical margin in each direction limited to skin and chest wall. Skin was delineated as a 5 mm shell inside the body contour. Then, the CT data with the contours were transferred to an external beam treatment planning system (Eclipse, Varian),