Furthermore, the kidneys filtered continuously, thus there will be stability during radiotherapy. The main disease for either boosting disease or to incorporate delivery methods. Fiducials have been used to better target an OAR discussed for both situations of the bladder as a target and as methods including their rationale and effectiveness will be pelvic nodes. Thus, patient and disease-related factors will influence on the day-to-day bladder position and shape. Furthermore, the kidneys filtered continuously, thus there will be steady filling of the bladder with a rate dependant on the hydration status of the patient during radiotherapy delivery. Other factors may also be crucial such as bladder capacity and function as well as disease extent if it is bladder cancer. Therefore, the variability of the bladder size and shape is an important consideration for any pelvic radiotherapy. Many investigators have reported on the marked difference in filling of the bladder with variation in bladder size that may range up to 20 mm on different scanning times during a course of fractionated radiotherapy. For primary bladder radiotherapy, identification of the disease extent remains important as both the target and tissue of tolerance is the bladder itself. This can also impact on the manner in which the bladder fills in 3D and be distorted by invasive bladder disease. It can be difficult to maintain daily consistency of the 3D shape and size; thus there are several methods developed to deal with this including treatment with either an empty or comfortably full bladder to initiating adaptive planning and image-guided delivery methods. Fiducials have been used to better target the main disease for either boosting disease or to incorporate focal therapy strategies. These methods can also permit organ avoidance if the bladder is an OAR and it is critical to minimise dose to it due to poor bladder function and other clinical factors. If the bladder is not the target then it can perform a useful function with intended filling prior to radiotherapy in order to displace other pelvic organs such as the bowel from irradiation such as with treatment of the pelvic nodes. Thus patient and disease-related factors will need to be carefully assessed for each case. All these methods, including their rationale and effectiveness will be discussed for both situations of the bladder as a target and as an OAR.

SP-0507 Bladder variability for pelvic radiotherapy: its approaches and impact
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It is clear that the bladder as an organ has marked shape and positional variability due to its function of storing urine before the call of nature. This has obvious repercussions for pelvic radiotherapy depending on the intent of treatment particularly if the bladder itself is the radiotherapeutic target. As an organ-at-risk (OAR) this variability can be important and this can also impact on adjacent organs such as the prostate, rectum and uterus if these latter organs are being treated with radiotherapy. These adjacent pelvic organs can also deform the bladder. In addition, the setup position of the patient either supine or prone can also influence on the day-to-day bladder position and shape. Furthermore, the kidneys filtered continuously, thus there will be steady filling of the bladder with a rate dependant on the hydration status of the patient during radiotherapy delivery. Other factors may also be crucial such as bladder capacity and function as well as disease extent if it is bladder cancer. Therefore, the variability of the bladder size and shape is an important consideration for any pelvic radiotherapy. Many investigators have reported on the marked difference in filling of the bladder with variation in bladder size that may range up to 20 mm on different scanning times during a course of fractionated radiotherapy. For primary bladder radiotherapy, identification of the disease extent remains important as both the target and tissue of tolerance is the bladder itself. This can also impact on the manner in which the bladder fills in 3D and be distorted by invasive bladder disease. It can be difficult to maintain daily consistency of the 3D shape and size; thus there are several methods developed to deal with this including treatment with either an empty or comfortably full bladder to initiating adaptive planning and image-guided delivery methods. Fiducials have been used to better target the main disease for either boosting disease or to incorporate focal therapy strategies. These methods can also permit organ avoidance if the bladder is an OAR and it is critical to minimise dose to it due to poor bladder function and other clinical factors. If the bladder is not the target then it can perform a useful function with intended filling prior to radiotherapy in order to displace other pelvic organs such as the bowel from irradiation such as with treatment of the pelvic nodes. Thus patient and disease-related factors will need to be carefully assessed for each case. All these methods, including their rationale and effectiveness will be discussed for both situations of the bladder as a target and as an OAR.

SP-0508 An evaluation of GoldAnchor intraprostatic fiducial marker stability during radiotherapy
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Background: Implantation of fiducial markers for IGRT (Image Guided Radiation Therapy) of prostate cancer patients increases the treatment accuracy by prostate localization using two orthogonal X-rays images. However, the precision of the treatment depends on the stability of the fiducial marker. The aim of this study was to evaluate the migration of fiducial markers during the whole radiotherapy of prostate cancer patients.

Material and methods: An analysis of the intraprostatic fiducials migration during the treatment planning was done on a group of 45 patients on the basis on fusion of kV CBCT (performed during the first week of the treatment) and planning CT. The value of migration during the course of radiotherapy was done on a group of 20 patients treated within IGRT protocol on the basis on the fusion of kV CBCTs, performed weekly. The migration was defined as a shift between central points of markers, measured in three axis.

Results: The average values of the GoldAnchor™ migration during the treatment planning were: 1.1 mm (SD=0.9 mm) in the superior-inferior (SI) direction, 0.5 mm (SD=0.6 mm) in the left-right (LR) direction and 1.1 mm (SD=1.2 mm) in the anterior-posterior (AP) direction. The mean value of the vector of shifts was 1.9 mm (SD=1.3 mm). The average values of the GoldAnchor™ migration during the course of radiotherapy were: 0.1 mm (SD=0.2 mm) in the superior-inferior (SI) direction, 0.1 mm (SD=0.3 mm) in the left-right (LR) direction and 0.2 mm (SD=0.4 mm) in the anterior-posterior (AP) direction. The mean value of the vector of shifts during the treatment was 0.3 mm (SD=0.5 mm).

Conclusions: The analysis of the collected data showed that the marker shifts during the treatment planning seems to have no clinical significance and probably are related to the inaccuracy of the fusion of kV CBCT and planning CT. Position of the marker shifts during the whole course of radiotherapy. Therefore, IGRT based on GoldAnchor™ markers is safe and effective method of prostate cancer patient positioning.

SP-0509 Validation of a prostate cancer decision aid tool for shared decision making
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Purpose: To comply a decision aid tool with the criteria of the International Patient Decision Aid Standards (IPDAS), it is mandatory to follow a systematic and iterative approach to: (a) understand patient’s and clinicians decisional needs, (b) create prototypical tools, (c) evaluate these prototypes with patients and clinicians and (d) use these results to improve the tool. We developed and validated a web-based decision aid (DA) for shared decision making in prostate cancer patients using this approach.

Methods: A prototype of the tool was designed based on the input of an interdisciplinary group. Its clarity and acceptability was tested using a mixed method (interview and technology acceptance questionnaire; 5-Likert scale). The evaluation was performed with physicians (N=19) and patients (N=16). Professionals from 5 academic and private hospitals (urologists, radiotherapists, specialized nurses and family doctors) gave their perspective about the patients’ decisional needs and validated the information about the treatment options, complications and outcomes. The included patients were treated with either external beam radiotherapy, brachytherapy or prostatectomy. Patients who choose not to be treated (active surveillance) were also included. The decisional needs were evaluated during an interview. Afterwards the patients’ were guided through the DA and asked to fill in a questionnaire to check the comprehensibility of the tool. A second group of patients (N=8) was included to assess the e-learning effect of the DA and to check if patients were able to use the DA alone (without coaching).

Results: The results were considered to create a new version of the DA. Physicians mentioned the need of information about basic anatomy, contraindications, hospital specific figures, and psychological support. Patients reported that the