Purpose/Objective: To correlate the vaginal toxicity to vaginal surface EQD23Gy dose in two protracted brachytherapy (BT) schedules administered after surgery for endometrial carcinoma.

Materials and Methods: 319 patients (p) with EC staged after surgery as 2009-Figo I-IIIC underwent radiotherapy. External beam irradiation (EBI) plus BT was considered for high risk and stages II-III p and BT alone for intermediate risk p. From 2003 to 2007 the treatment schedule for 166p was 3 fractions(1)/week(w) of 4-6Gy after EBI (Group-1: 125p) and 4-6Gy in 6f/2w for BT alone (Group-2: 41p). From 2007 to 2011 the daily dose schedule in 94/153p was 2f/w of 5-6Gy after EBI (Group-3) and 5-6Gy in 4f in BT treatment alone (Group-4: 59p). The mean EBI dose in Groups 1 and 3 was 44Gy (43-50.4). BT was performed mainly using vaginal cylinders. The median active length of BT treatment was 2.5cm (2-4). Toxicity was prospectively evaluated using the objective criteria of LENT-SOMA. In Groups 1+3 vs. Groups-2+4 (p= 0.667). The overall incidence of VCR was 2.28% vs. 0% respectively (p=0.320). Late Toxicity: 1-Vagina: Group-1: 20.8% G1; 0.8% G4. Group-2: 24.4%; Group-3: 26.6% G1-2; 1.1% G4. Group-4: 20.0% G1-2. No differences were found between the two treatment schedules (p= 0.680) and between Groups-1 vs. Groups-2+4 (p= 0.667). The overall percentage of G1-G4 toxicity for Groups 1-4: 23.4%. Mean vaginal surface EQD23Gy: Group-1: 90.02Gy, SD 13.72; Group-2+4: 79.83Gy, SD 23.66; significant differences in EQD2 values were found between Groups 1+3 and 2+4 (p=0.0001). Nevertheless, no correlation was found between the vaginal surface EQD23Gy and the development of vaginal complications.

Conclusions: No differences were found in VCR and toxicity between the 2 BT schedules. No correlation was found between vaginal toxicity and vaginal surface EQD23Gy for the present dose per fraction schedules.

PO-1018
Clinical results after introduction of MR guided brachytherapy at single institution experience
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Purpose/Objective: From May 2010 all cervical cancer patients (pts) referred for brachytherapy (BT) have been MRI scanned. We present our retrospectively evaluated treatment results with gradually introduction of individualised MR-based plans.

Materials and Methods: All pts referred for BT were filed in a separate database. Pts characteristics, morbidity and pathology and imaging data were obtained from the electronic charts. Survival data were obtained through the national patient registry. The radiation doses were drawn from Eclipse™ for the external radiation treatment (EBRT) and from Oncentra™ for BT. All EBRT were IMRT or rapid arc. BT was delivered as HDR, with a Vienna applicator, a Titanium Cylinder Applicator or a Steel Cylinder Applicator. In addition to and MRI at diagnosis, before BT and at the first BT fraction (F), the pts were scheduled to have a conebeam CT (CBCT) scan on the treatment couch at each fraction. A modified Embrace CRF was the basis of data collection. Data were processed with SPSS Predictive Analytics-software. Survival was calculated using the Kaplan-Meier estimate with a log rank test for significance.

Results: We treated 80 pts from May 2010 to August 2014 with the following characteristics; Median age 53.5 years [21-83], PS0: 76.3%, PS1: 20%, PS2: 3.8%, stage I: 12.5%, stage II: 71.3%, stage III: 16.3%. Pathology and imaging data were obtained from the national patient registry. The radiation doses were drawn from Eclipse™ for the external radiation treatment (EBRT) and from Oncentra™ for BT. All EBRT were IMRT or rapid arc. BT was delivered as HDR, with a Vienna applicator, a Titanium Cylinder Applicator or a Steel Cylinder Applicator. In addition to and MRI at diagnosis, before BT and at the first BT fraction (F), the pts were scheduled to have a conebeam CT (CBCT) scan on the treatment couch at each fraction. A modified Embrace CRF was the basis of data collection. Data were processed with SPSS Predictive Analytics-software. Survival was calculated using the Kaplan-Meier estimate with a log rank test for significance.

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Conclusions: The introduction of MRI based BT in our clinic was feasible and the treatment results were similar to other published series. The rate of significant side effects encourages us to elaborate the plan modification techniques, apply interstitial needles and treat all pts with individual plan in the future.

PO-1019
Improving service efficiency by reducing the volume of bowel contoured when performing IGBT of the cervix?
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Purpose/Objective: Contouring the bowel is one of the most time consuming aspects of planning a HDR treatment of the cervix. This investigates the possibility of reducing the volume of bowel to be contoured for planning purposes when treating the Cervix with HDR using a Tandem and Ovoid Applicator with CT simulation. It is hoped that the service efficiency can be improved by reducing the volume of bowel contoured prior to planning.

Materials and Methods: Additional contours were constructed on previous patient plans which were clinically accepted. Using Oncentra Brachy (Version 4.3), 3D margins of 0.5cm, 1.0cm, 1.5cm and 2.0cm were grown around the HR-CTV. The overlap of the original (complete) bowel volume and the newly created volumes was extracted to produce a bowel contour which was limited to within a given distance from the HR-CTV. For example, taking the intersection of the ‘Bowel’ and the ‘HRCTV + 1.0cm’ to give a bowel contour which only extends to 1.0cm beyond the HR-CTV (referred to as ‘HR-CTV + 1.0cm & Bowel’). This produced a set of bowel outlines which were limited to within a given margin of the HR-CTV. The dosimetric parameters (D2cc, D1cc, D0.1cc) reported by Oncentra were recorded for the original bowel volume, as well as the limited bowel volumes produced to enable comparison.

Results: A total of 10 plans were contoured and assessed, with comparison of the dosimetric parameters performed for the limited bowel volumes. A summary of the results is given in the table. The mean doses for the fully contoured bowel were 3.99Gy, 4.39Gy and 5.37Gy for the D2cc, D1cc and D0.1cc respectively. When the bowel was limited to within 1.5cm or less of the HR-CTV there was at least one contour which did not give sufficient volume to produce complete dose statistics. When considering contouring within a 2.0cm margin of the HR-CTV the mean change in the D0.1cc was less than 0.1Gy (with D2cc and D1cc being less than 0.05Gy). The reduction in volume contoured however was large, with a reduction of around 65% in volume when restricting contouring to within 2.0cm of the HR-CTV.

Conclusions: Restricting the bowel contouring for planning of treatments of the Cervix using Tandem and Ovoid applicators with CT simulation to within 2.0cm of the HR-CTV has the potential to reduce the volume contoured by 65%. This results in a change in reported dose statistics of less than 0.1Gy for the D0.1cc and less than 0.05Gy for the D1cc and D2cc. These small changes would not have an effect on the clinical decision to treat using the produced plans. By producing a an expanded HR-CTV contour, the bowel contouring could be easily limited to within this region, thus reducing the time taken to contour, ultimately leading to a more efficient treatment delivery. Applying this to other organs at risk may also be possible.

PO-1020
High-dose rate vaginal brachytherapy in early stage endometrial cancer
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Purpose/Objective: Aim of this study was to evaluate vaginal recurrence rate and toxicity after postoperative vaginal brachytherapy (VBT) in patients (pts) with early stage endometrial cancer.