Supplementary Table 1: Multivariable Cox proportional hazard model for pelvic fractures in female patients with a step function to separate the proportional hazard from brachytherapy into before and after 2 years.

		Pelvic Fracture HR (95% CI)	
RT (Ref: 3DRT)	*Brachytherapy Alone (0-2 years)*	0.28*	(0.20 – 0.39)
	Brachytherapy Alone (> 2 years)	0.63*	(0.47-0.84)
	IMRT	0.84*	(0.72-0.99)
Age (per 10 years)		1.93*	(1.76-2.11)
Race (Ref: White)	*Black*	0.46*	(0.34-0.61)
	Other	0.57*	(0.43-0.77)
Primary (Ref: Rectal)	*Cervical*	1.38*	(1.14-1.68)
	Endometrial	0.75*	(0.64-0.88)
	Anal	1.21	(0.99-1.51)
	Prostate	NA	
Chemotherapy		0.92	(0.80-1.06)
ADT		NA	
Stage (Ref: I-II)	*III-IV*	1.28*	(1.12-1.48)
CCI (Ref: 0)	*≥ 1*	1.17*	(1.03-1.32)
Diagnosis Year (Ref: 2003-2008)	*2009-2013*	0.91	(0.79-1.05)

*indicates p-value < 0.05. #Regression among prostate cancer patients only. Abbreviations: SD, standard deviation; ADT, Androgen Deprivation Therapy; CCI, Charlson Comorbidity Index; RT, Radiation Therapy; 3DRT, 3-Dimentional Conformal RT; IMRT, Intensity Modulated RT.
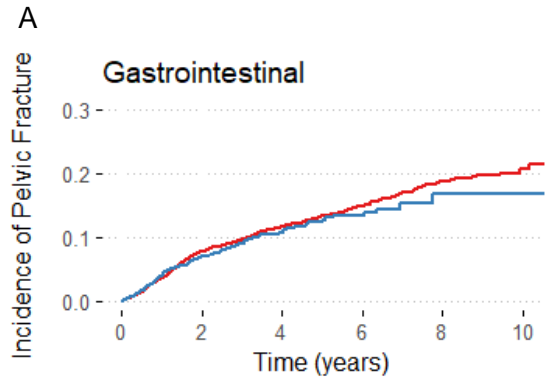
Supplementary Table 2: Multivariable Cox Proportional Hazards Model with T_0 set as date of RT start.

		Female		Male	
		Pelvic Fracture HR (95% CI)	Non-Pelvic Fracture HR (95% CI)	Pelvic Fracture HR (95% CI)	Non-Pelvic Fracture HR (95% CI)
RT (Ref: 3DRT)	Brachytherapy Alone	0.85* (0.73-0.99)	0.99 (0.83-1.18)	0.92 (0.78-1.08)	0.91 (0.78-1.07)
	IMRT	0.43* (0.34-0.53)	0.87 (0.71-1.05)	0.76 (0.52-1.12)	0.72 (0.5-1.04)
Age (per 10 years)		1.93* (1.76-2.11)	1.56* (1.41-1.72)	2.80* (2.48-3.17)	1.64* (1.46-1.86)
Race (Ref: White)	Black	0.46* (0.34-0.61)	0.28* (0.18-0.41)	0.56* (0.42-0.77)	0.55* (0.42-0.73)
	Other	0.58* (0.43-0.77)	0.87 (0.66-1.15)	0.54* (0.4-0.73)	0.59* (0.45-0.78)
Primary (Ref: Rectal)	Cervical	1.35* (1.11-1.64)	1.02 (0.81-1.3)	NA	NA
	Endometrial	0.78* (0.67-0.92)	0.80* (0.68-0.96)	NA	NA
	Anal	1.2 (0.97-1.49)	0.83 (0.63-1.08)	1.01 (0.54-1.87)	0.92 (0.49-1.7)
	Prostate	NA	NA	0.76 (0.55-1.03)	0.59* (0.44-0.79)
Chemotherapy		0.93 (0.81-1.08)	0.88 (0.75-1.03)	1.04 (0.74-1.46)	0.85 (0.62-1.17)
ADT		NA	NA	1.32* (1.14-1.52)	1.23* (1.07-1.41)
Stage (Ref: I-II)	III-IV	1.29* (1.13-1.48)	1.02 (0.87-1.19)	1.15 (0.94-1.42)	1.16 (0.96-1.41)
CCI (Ref: 0)	≥ 1	1.17* (1.03-1.32)	1.33* (1.16-1.51)	1.35* (1.18-1.55)	1.32* (1.16-1.5)
Diagnosis Year (Ref: 2003-2008)	2009-2013	0.91 (0.79-1.05)	0.94 (0.81-1.09)	0.84 (0.71-1.01)	1.00 (0.85-1.18)

*indicates p-value < 0.05. #Regression among prostate cancer patients only. Abbreviations: SD, standard deviation; ADT, Androgen Deprivation Therapy; CCI, Charlson Comorbidity Index; RT, Radiation Therapy; 3DRT, 3-Dimentional Conformal RT; IMRT, Intensity Modulated RT.
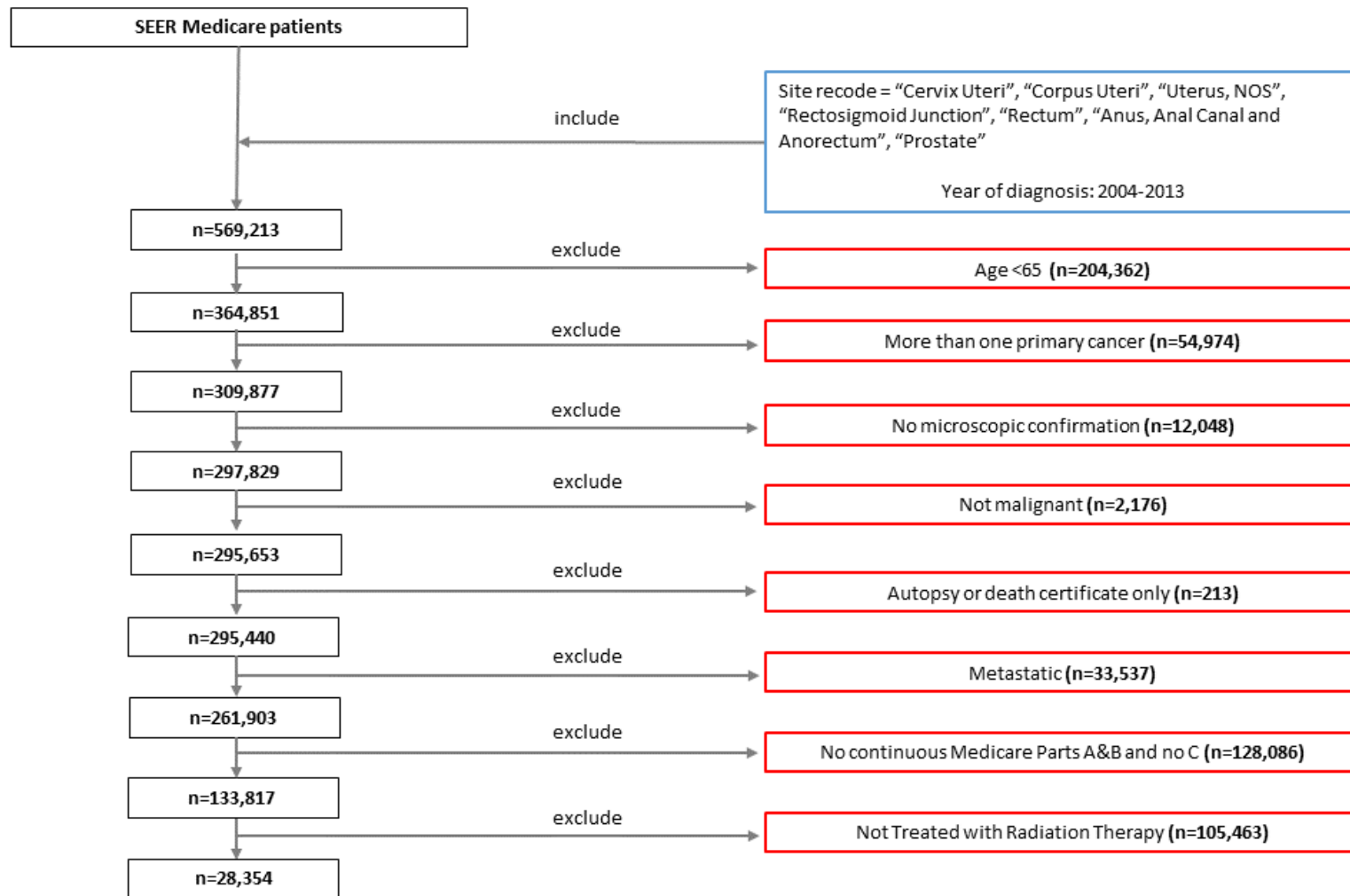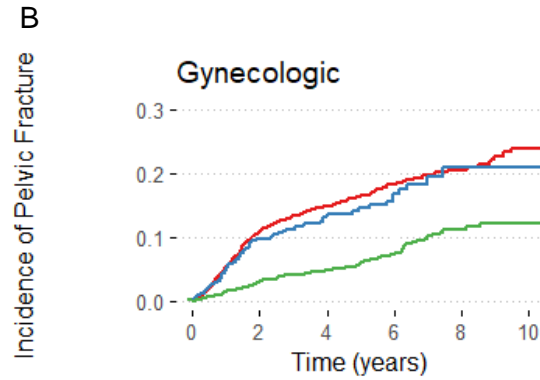
Supplementary Figure 1. Patient selection for the cohort showing inclusion and exclusion criteria.
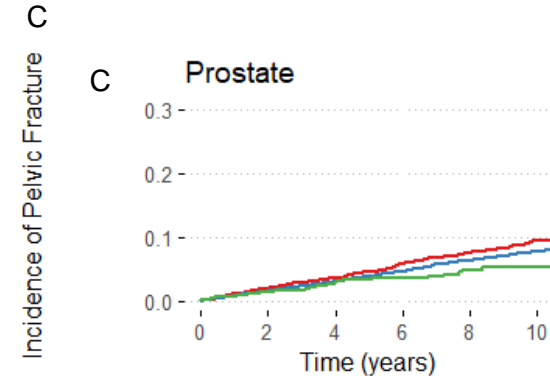
A Gastrointestinal

Incidence of Pelvic Fracture

Time (years)

Number at risk

	0	2	4	6	8	10
3DRT	4019	2571	1604	973	482	129
IMRT	1795	1007	470	178	51	≤10

B Gynecologic

Incidence of Pelvic Fracture

Time (years)

Number at risk

	0	2	4	6	8	10
3DRT	755	1575	984	632	326	85
IMRT	296	624	287	129	36	≤10
Brachy Alone	925	1375	817	443	202	38

C Prostate

Incidence of Pelvic Fracture

Time (years)

Number at risk

	0	2	4	6	8	10
3DRT	1647	2369	2067	1682	1166	398
IMRT	3084	11195	8231	5267	2457	531
Brachy Alone	330	747	621	469	265	62

D

Incidence of Other Fracture

Time (years)
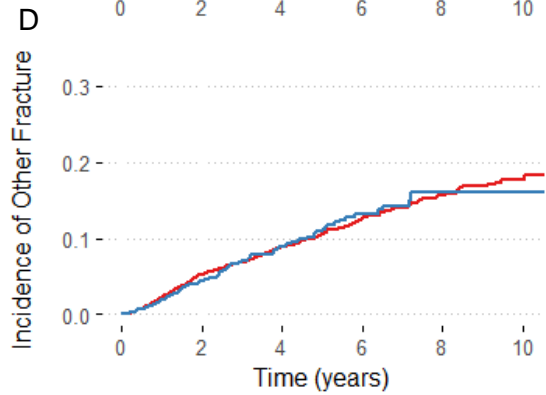
Number at risk

	0	2	4	6	8	10
3DRT	4019	2743	1721	1041	548	164
IMRT	1795	1092	523	190	56	11

E

Incidence of Other Fracture

Time (years)
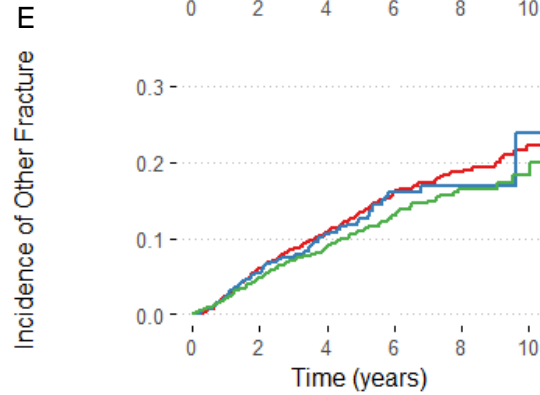
Number at risk

	0	2	4	6	8	10
3DRT	755	1775	1120	702	373	113
IMRT	296	720	329	143	48	≤10
Brachy Alone	928	1450	864	450	208	56

F

Incidence of Other Fracture

Time (years)
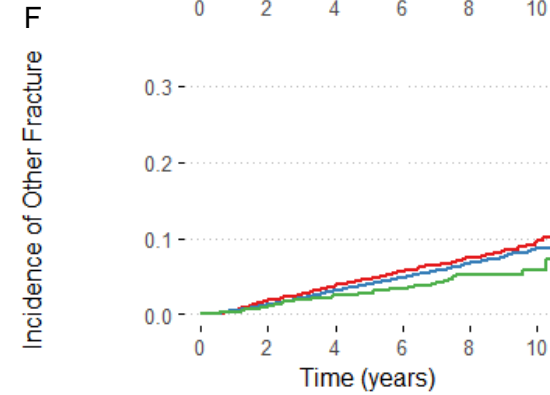
Number at risk

	0	2	4	6	8	10
3DRT	1647	2413	2107	1743	1279	578
IMRT	3084	11610	8751	5809	2970	819
Brachy Alone	330	766	653	505	315	101

Supplementary Figure 2. Incidence of Pelvic and Non-Pelvic Fractures by Type of RT*: Incidence of pelvic fractures (a-c) and non-pelvic fractures (d-f) for gastrointestinal (a,d), gynecologic (b,e) and prostate (c,f) cancer by type of radiation therapy. Abbreviations: 3DRT, 3D conformal radiation therapy; IMRT, intensity modulated radiation therapy; Brachy, brachytherapy. * T_0 set as date of RT start.