

**Adjuvant Robotic Stereotactic Accelerated Partial Breast
Irradiation (RSAPBI) for Post-menopausal Hormone
Receptor-positive Early-Stage Breast Cancer: 3-year
Outcomes of a Prospective Multi-institutional Registry**

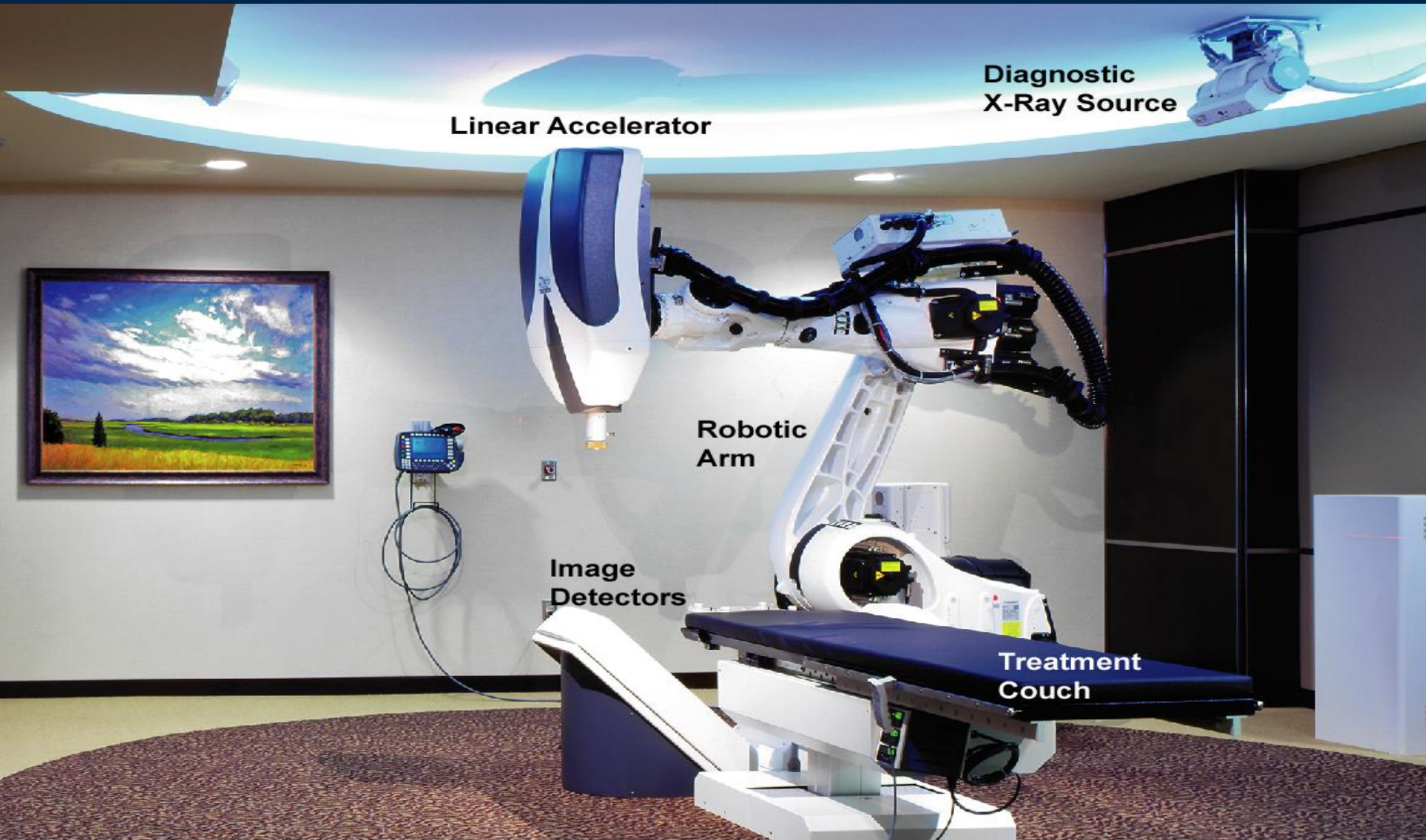
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GEORGETOWN HOSPITAL (2002)



Estimated New Cases



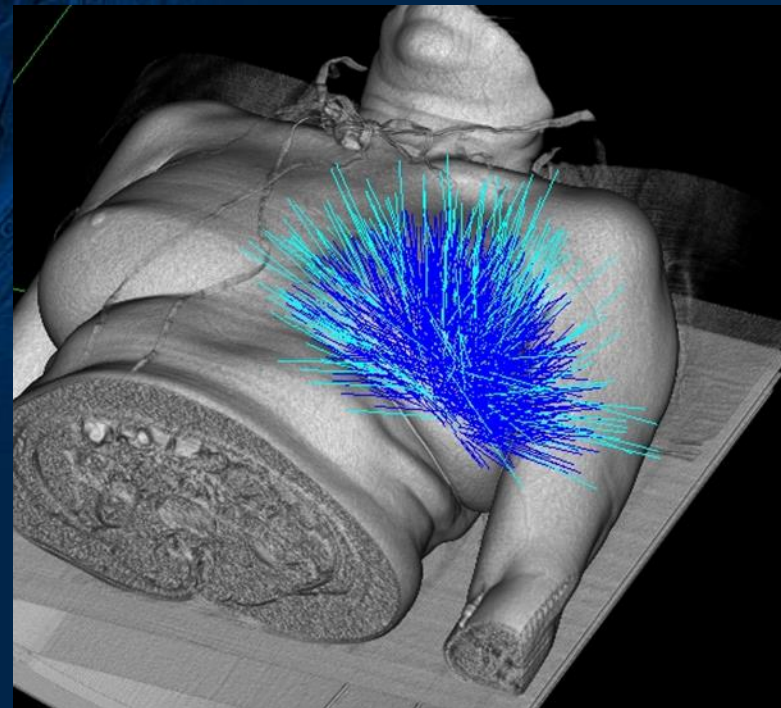
			Males	Females			
Prostate	288,300	29%			Breast	297,790	31%
Lung & bronchus	117,550	12%			Lung & bronchus	120,790	13%
Colon & rectum	81,860	8%			Colon & rectum	71,160	8%
Urinary bladder	62,420	6%			Uterine corpus	66,200	7%
Melanoma of the skin	58,120	6%			Melanoma of the skin	39,490	4%
Kidney & renal pelvis	52,360	5%			Non-Hodgkin lymphoma	35,670	4%
Non-Hodgkin lymphoma	44,880	4%			Thyroid	31,180	3%
Oral cavity & pharynx	39,290	4%			Pancreas	30,920	3%
Leukemia	35,670	4%			Kidney & renal pelvis	29,440	3%
Pancreas	33,130	3%			Leukemia	23,940	3%
All Sites	1,010,310	100%			All Sites	948,000	100%

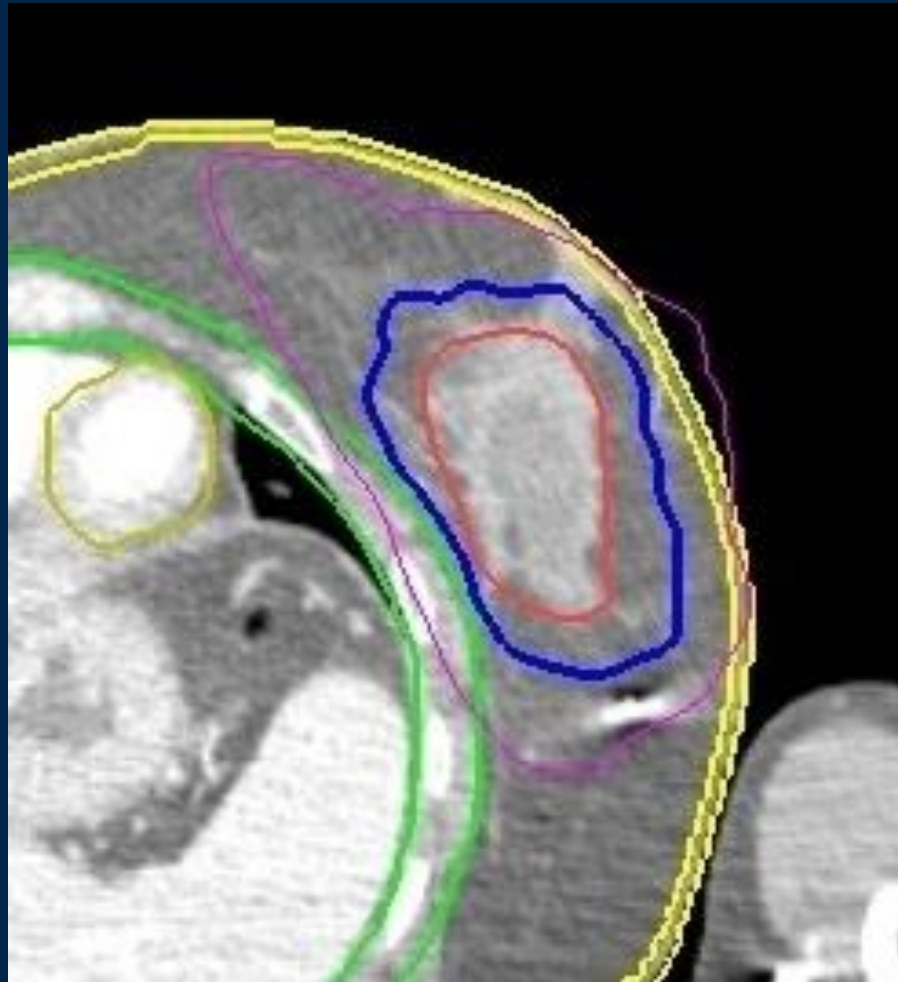
Figure 1 Estimated new cancer cases by gender for the top 10 major cancer types in the United States, 2023 (estimates rounded to the nearest 10)

Breast SBRT Technique (2008)

- Supine position with arms at side
- Four gold fiducials placed
- Synchrony tracking
- >100 pencil beams



Dose Distribution



Prospective Multi-institutional Registry (2015-2020):

81 low risk patients (mean 68 y/o)

- 84% inv ductal / 16% DCIS
- ER+, PR+ and HER2 -
- Tumor size ≤ 2 cm
- N0 or Nx lymph nodes

3-Year Registry Results:

- Delivered 30 Gy in 5 fractions
- Median CTV expansion = 10 mm
- Median PTV expansion = 3 mm

3-Year Registry Results:

Table 1: Outcome Data

Variable	Number
Total patients	81
Deceased	4 (5%)
Living	77 (95%)
Breast Cancer Mortality	0
Breast Cancer Outcomes	
Local Failure	0
Regional Failure	0
Distant Failure	0
New Primary Breast Tumor Occurrence	1
Cosmesis at last follow-up	
Excellent	65 (84%)
Good	16 (15%)
Fair	1 (1%)
Acute RTOG Toxicity at 1 or 3 months	
Grade 0	66 (84.6%)
Grade 1	12 (15.4%)
Grade 2	0
Grade \geq 3	0

Two Grade I Telangiectasia





SBRT Alone?

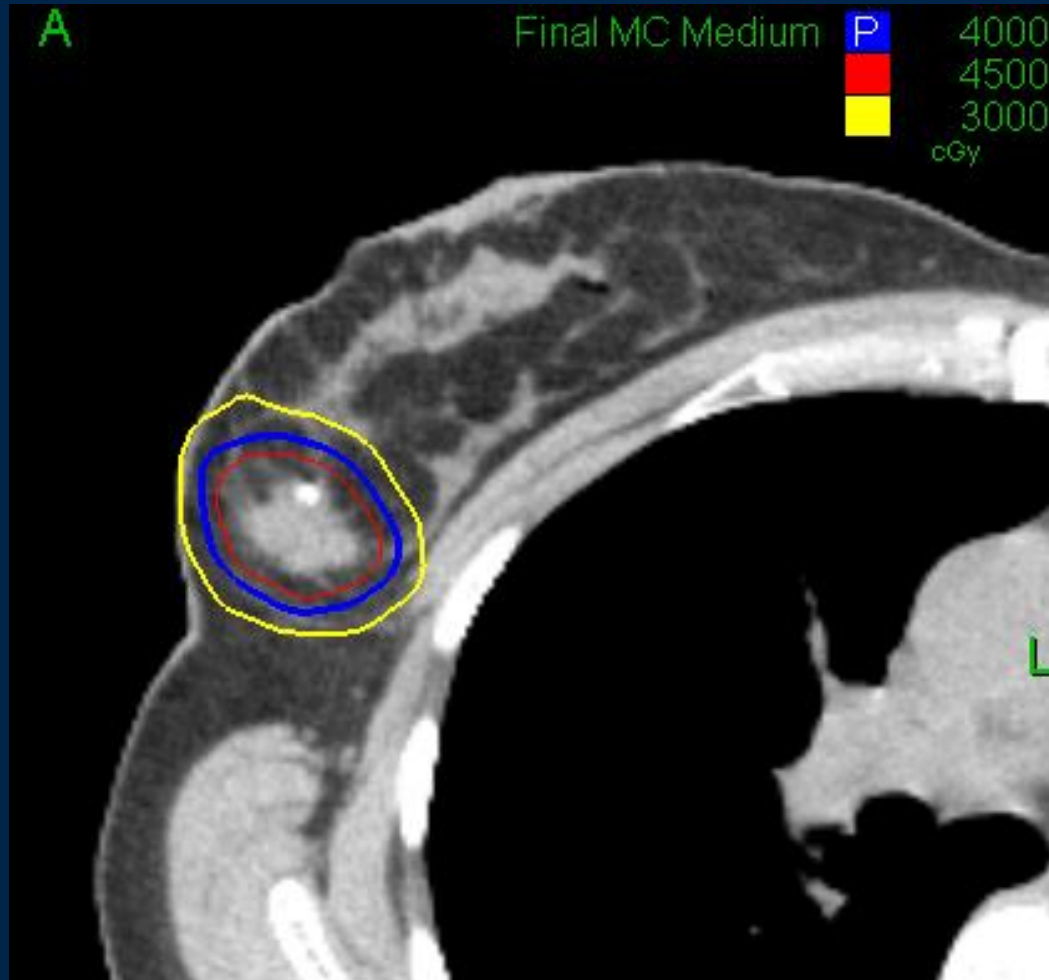
Why Breast SBRT Alone?

- No surgery !!!!!!!!!!!!!!!
- No scar or tissue loss
(better cosmetic result)

Why Breast SBRT Alone?

- Better target (small easily defined gross tumor)
- Better tracking (no seroma)

SBRT Alone Trial?



SBRT Alone Challenges?

- Surgery

- Hormonal therapy



Low risk patients age ≥ 70 years

- Tumor size ≤ 2.0 cm (?)
- ER+, PR+ and HER2 –
- N0 or Nx lymph nodes

Robotic Radiosurgery

Paired ceiling
X-Ray Sources

6 MV Linear
Accelerator

Robot

Multiple Collimators

Paired Floor
Image Detectors

