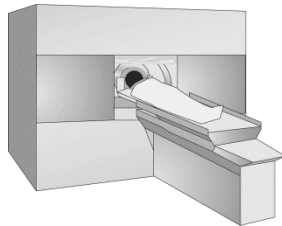


# Stereotactic Body Radiation Therapy

## Stereotactic Body Radiation Therapy



### Technology In Brief

#### What Is It:

- Stereotactic body radiation therapy (SBRT) involves the precise delivery of a high dose of ionizing radiation over a few delivery sessions to a localized malignancy in order to kill tumor cells and prevent future growth

#### How Does it Work:

- SBRT is most commonly delivered via use of a linear accelerator (LINAC). Using 3D coordinate-based treatment planning and dose delivery, a very specific area encompassing the tumor is irradiated with a “surgical” dose of ionizing radiation

#### Adoption Status:

- Over 380 sites offering SBRT; obsolescence risk is low

#### FDA Status:

- Major manufacturers received FDA approval in 2000s

#### Major Vendors:

- Accuray, Inc; BrainLAB; Elekta; Siemens; Varian

#### Competing Products:

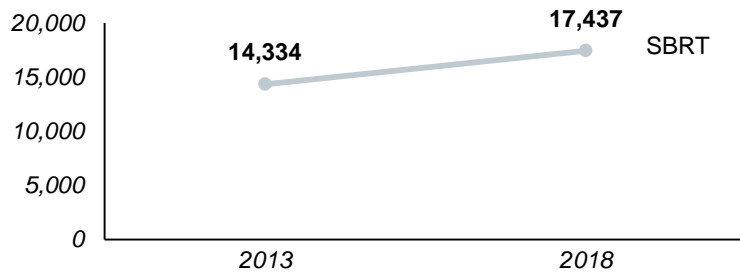
- Surgical resection, Chemotherapy, Thermal ablation (in some cases)

Consideration	Technology Insights' Take
<b>Clinical</b>	<ul style="list-style-type: none"> <li>• Lesions located in close proximity to critical structures, such as lung and prostate tumors, benefit from the greater precision of SBRT, though the increased dose may lead to the development of more acute side effects from damage to the healthy tissue</li> <li>• Patient preference for less invasive and time intensive treatment driving clinical interest</li> <li>• Emerging clinical evidence of effectiveness compared to competing modalities, though long-term studies are ongoing</li> </ul>
<b>Reimbursement</b>	<ul style="list-style-type: none"> <li>• Separate billing codes available for robotic SRS and SBRT</li> <li>• Significant decrease in reimbursement for SBRT in 2014</li> </ul>
<b>Cost</b>	<ul style="list-style-type: none"> <li>• LINAC Upgrades: \$750K - \$1M+</li> <li>• Dedicated Machine: \$2.5M - \$4.5M</li> <li>• Moderate variable procedure costs for patient fixation devices</li> </ul>
<b>Payer Coverage</b>	<ul style="list-style-type: none"> <li>• Medicare/Public: Approved for treatment of most tumors in body, may require justification of aggressive therapy and acceptable risk to critical structures</li> <li>• Private: Prior authorization often required, experimental sites disallowed</li> </ul>
<b>Market Potential</b>	<ul style="list-style-type: none"> <li>• Emerging early-stage clinical trials indicate that SBRT may be an appealing therapeutic option for broader range of tumor sites, including lung, prostate, breast, pancreas, and bony metastases. The evolution of clinical evidence for these indications would potentially boost SBRT volumes and expand access to a broader patient population</li> </ul>
<b>Operational Needs</b>	<ul style="list-style-type: none"> <li>• Collaborative framework for radiation oncologists and other specialists for SBRT treatment delivery</li> <li>• Need for additional medical physics and dosimetry support</li> <li>• Possible hiring of clinical nurse coordinator may be required</li> </ul>
<b>Impact in Accountable Care</b>	<ul style="list-style-type: none"> <li>• A need for more definite evidence of the comparative effectiveness of SBRT may impact reimbursement and coverage prospects and slow adoption for novel tumor sites, given the technology's expense</li> </ul>
<b>Competitive Take</b>	<ul style="list-style-type: none"> <li>• SBRT offering may attract referrals for patients with complex tumors or those who are poor candidates for surgery</li> </ul>
<b>Position on the Adoption Curve</b>	<ul style="list-style-type: none"> <li>• Early Majority</li> </ul>

# Ensuring Physician Support, Identifying Referral Sources Imperative for Investment

## Market & Financial Overview

### National Market Estimates



**22%**  
Projected Growth in Robotic SBRT

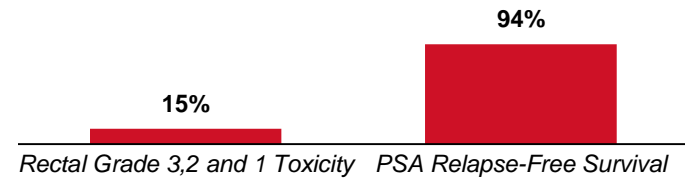
### Reimbursement Rates

Procedure	2013 Final Rate	2014 Final Rate	% Change
SBRT Robotic LINAC & CK	\$10,633	\$7,377	(30.6%)
Non-Robotic SBRT - Single Session	\$4,905	\$4,628	(5.7%)
Non-Robotic SBRT - Multi-Session	\$4,833	\$10,968	127%

## Clinical Considerations

### SBRT for Low-Risk Prostate Cancer

*N = 67; Median Follow-Up 2.7 Years*



- Prospective trial of SBRT followed 67 patients with low-risk prostate cancer for a median of 2.7 years.
- The 4-year Kaplan-Meier PSA and low-grade bladder and rectal toxicities were reported to be similar or better than other established treatments such as radical prostatectomy, external beam radiotherapy, and brachytherapy
- SBRT presents promising minimally invasive technique that utilizes fewer treatment fractions than conventional radiotherapy, which also present cost-savings potential for the health system. However, more robust clinical trials are necessary to understand the implications of the delivery of a higher dose rate



### Keys for Investment Success

- Survey key physician specialists to gain buy-in for SBRT program, platform preferences by tumor site and identify competitive gaps
- Stay abreast of supporting clinical literature, reimbursement, and other market forces driving investments in radiosurgery capable platforms
- Use dedicated multidisciplinary team to manage utilization of SBRT platform and determine patient eligibility

1) King et al., "Long-term outcomes from a prospective trial of stereotactic body radiotherapy for low-risk prostate cancer," *Int J of Radiation Oncology, Biology, Physics*, 2012.