

Innovative Inverse Brachytherapy Planning

Prowess Panther™ Inverse Brachy



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- Inverse Brachytherapy
 - Better conformity
 - Reduced dose
 - More accurate



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- **Significant Innovation**
 - First and only Brachytherapy planning system to employ sophisticated global constrained optimization techniques
 - Offers accuracy in dose delivery while lowering radiation to normal tissues
 - Developed by Prowess, Inc., in cooperation with Georgia Tech and Emory University



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- **Breakthrough Technology**

- Employs TG43 formalism for dose calculation
- Explicitly incorporates all delivery constraints
- Optimizes using global strategies to search for the best seed configuration
 - Delivers the prescribed dose to the tumor
 - Satisfies all delivery constraints
 - Achieves the best conformity
 - Results in least irradiation to normal tissues



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Compared to Other Brachytherapy Planning Systems

- ▶ Improves conformity ranges from 10–20%
- ▶ Reduces urethra dose by 21%
- ▶ Reduces rectum dose by 15%
- ▶ Uses fewer seeds (~15%)
- ▶ Uses fewer needles (10%)
- ▶ Underdose within 3% of prescribed dose

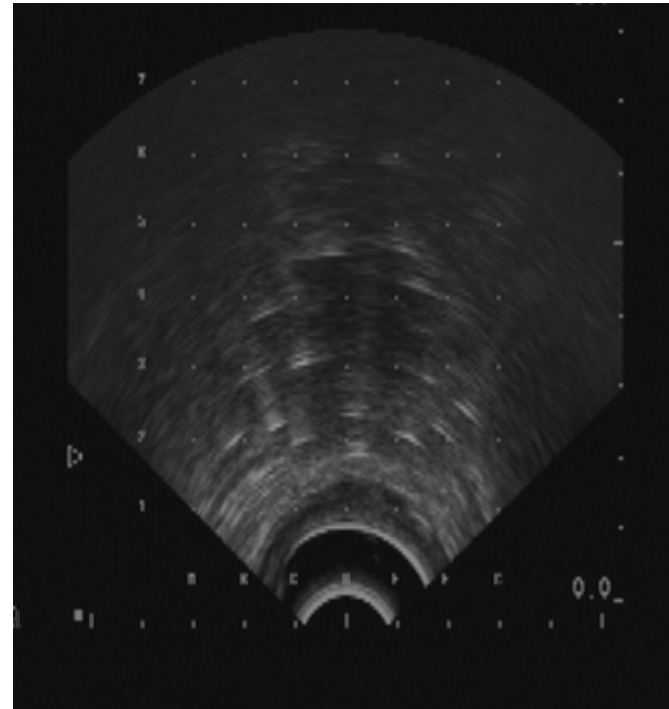


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- Ultrasound image is used to delineate the prostate, the rectum and the urethra



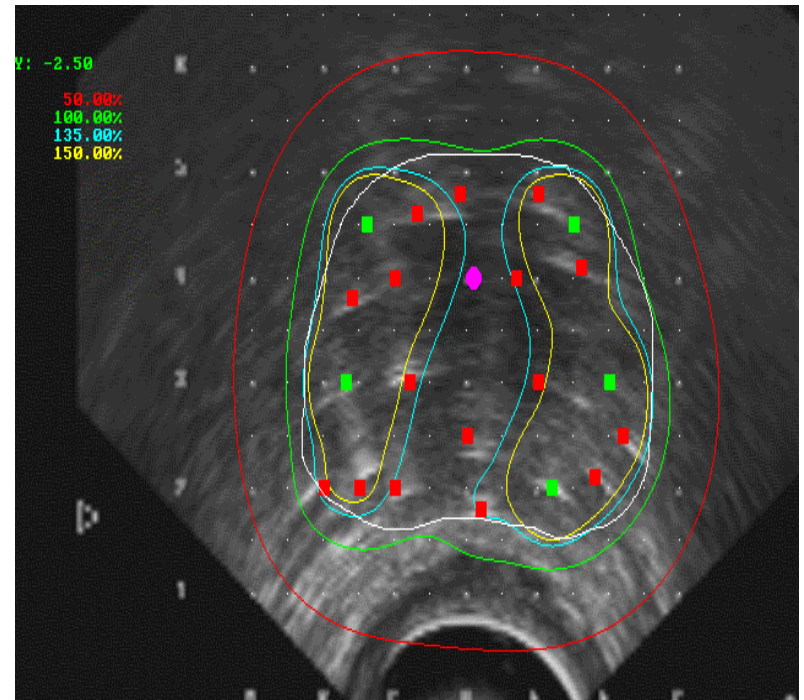
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- **The resulting plan**
 - White line is prostate
 - Green dots indicate seeds
 - Red dots show empty seed positions along each needle

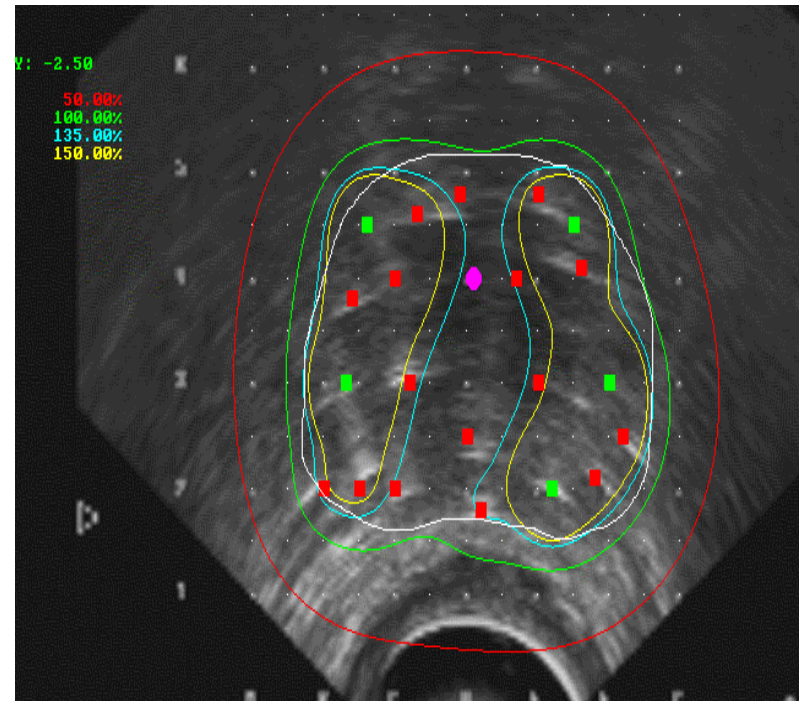


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- The resulting plan
 - 100% of the gland received the prescribed dose



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