Smart Start Treatment Planning - Software for Brachytherapy Cancer Treatment

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Low Dose Rate (LDR) Brachytherapy

• A form of internally delivered radiation therapy most often used to treat localized prostate cancer.

• Radioactive 'seeds' are positioned in the prostate using needles that are guided into position by ultrasound and a template or grid.
Images are integrated into treatment planning.

Ensures even dosing of radiation in only the desired sites.

Provides performed template plans that aid the physician in treatment planning.

Shorten the surgery times.
Problem:
Plans made by commercial software not always acceptable to physicians

- Certain seed positions proposed by commercial software may not be accessible or may be risky.
- Physicians prefer certain loading patterns, seed activities, and needle positions based on workflow considerations and clinical experience.

http://timelinesuit.info/2016/02/23/9002/
Solution

Inventors propose a semi-automated knowledge-based algorithm

Physician preferences and clinical decisions are captured in prior cases. Prior cases may provide a good starting point for planning a new case, provided that the cases are similar.

The potential advantages of knowledge-based planning are:

1) Standardized plans tailored to physician preferences
2) Decreased planning time
Results: Clinically acceptable plan using Knowledge-based plan, no edits

Prostate volume being treated with radiation

100% of the prescription of the dose
Results: Clinically not acceptable plan using Knowledge-based plan, Minor edits needed
Commercial Opportunity

Advantages

• Standardizing the Treatment Plan (tailored to physician preferences)
• Get to pick the treatment plan that gave the best result for a similar case
• Decreased Planning time
• “Training tool” or “Quality assurance tool”
• Meets recommended dosimetric constrains

Next Steps

• Continuation of validation studies
• Software development

Commercialization

• Integrated feature to a currently developed application
Thank You!