

Top 3 reasons for inaccuracy in radiation therapy planning

[Learn more](#)

Risks that may exist in your radiation oncology department

1. Human Error Staff may make more errors than you think

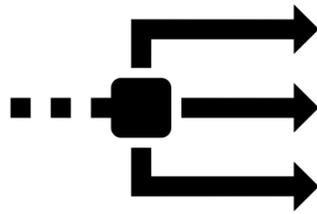
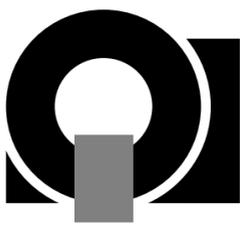
RT treatment planning requires high levels of accuracy for clinical success. While the number of errors remain small, operators are responsible for the majority of them.

60% of errors are due to human factors¹



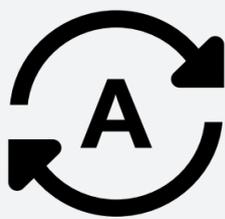
related to scan setup

and workflow complexity.



2. Imprecise Contouring Contouring isn't precise and/or takes too long

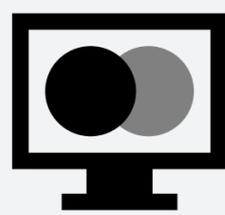
Today's automatic contouring methods can be highly variable, leading to unnecessary margins and uncertainty in RT treatment.²



Automatic contouring, while efficient, has shown limited accuracy.



Limited accuracy and variability impact therapy efficacy and puts non-target organs at risk.

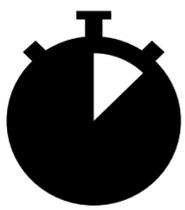


Variability can also limit clinicians' ability to compare radiotherapy plans across staff and locations.

3. Motion Artifacts Breathing irregularities are common

Even with excellent contouring, your staff may be challenged by motion artifacts in RT treatment planning.

75% of patients breathe irregularly, which can lead to image acquisition challenges, artifacts, and consequently inaccuracies in the treatment plan.³



These errors can be fixed with manual detection of motion artifacts, however this can be a tedious, time-consuming process. Maybe even rescans are required.



Manual detection and correction is user-dependent, thus making consistency across clinical staff difficult.



To deliver the most effective RT treatment possible for a patient, you need accurate, reliable RT planning – overcoming the challenges of human error, imprecise contouring, and 4DCT motion artifacts.

Watch a video to learn more about the risks that can occur in your radiation oncology department.

[Watch the video](#)

¹Vinod S, Jameson M, Min M, Holloway L. Uncertainties in volume delineation in radiation oncology: A systematic review and recommendations for future studies. Radiotherapy and Oncology. 2016 Aug [cited 2019 Aug]. Available from: [https://www.thegreenjournal.com/article/S0167-8140\(16\)34331-6/pdf](https://www.thegreenjournal.com/article/S0167-8140(16)34331-6/pdf)

²Greenwalt J et al. Reducing errors in radiation therapy through electronic safety checklists. Applied Radiation Oncology. 2014; 5–9.

³Werner R, Hofmann C, Mucke E, Gauer T. Reduction of breathing irregularity related motion artifacts in low-pitch spiral 4D CT by optimized projection binning. Radiation Oncology, 2017.