



## Accuray: Simplifying Radiotherapy Setup and Monitoring Patients with the Radixact® System.

Studies have revealed that surface-guided radiotherapy (SGRT) could potentially mitigate 21% of errors associated with radiotherapy [1]. Serving as a “second observer” [2] throughout the treatment process, SGRT enhances the precision of patient positioning and monitoring across all stages of the treatment delivery.

Despite multiple checks in the workflow chain, errors do occur. Various factors, such as margins reduction and a shift towards hypofractionation [3–6], have resulted in reduced tolerances for errors. Consequently, there has been a corresponding increase in the need to monitor the quality and safety of treatments during delivery [7–8]. Through continuous monitoring of the patient's surface, SGRT emerges as an invaluable tool within the radiotherapy workflow, serving as an independent safety system, and detecting setup errors and intrafraction motion to further enhance treatment precision and efficacy [9]. Accuray acknowledges these challenges and has taken proactive measures to address them.

The Radixact® System now seamlessly integrates SGRT functionalities.

VitalHold™ has been designed to streamline patient setup, enhance monitoring during treatment, and help facilitate deep inspiration breath-hold (DIBH) treatments with ease and integration. VitalHold™ elevates its capabilities, helping to ensure enhanced patient safety and treatment quality.



In partnership with C-RAD, the Radixact System utilizes 3 Catalyst+ HD™ cameras which project optical imaging

onto the patient's surface, enabling precise positioning, tattoo-free, and mark-free, all without additional radiation exposure. Originally tailored for breast cancer treatments, the VitalHold™ package's versatility extends to all patient cases with its three key functionalities:

### Surface-Guided Patient Setup

VitalHold™ redefines patient setup on the Radixact System by eliminating the need for tattoo points. Instead, 3 high-definition cameras mounted above the treatment area enable surface-guided daily setup for every patient. Couch coordinates are directly sent to the Radixact System, streamlining workflows, and making patient setup easier and faster as compared to setups without VitalHold™, according to the team at CHUV, Lausanne, where the first system has been installed worldwide.

### In-bore Motion Detection

VitalHold™ provides real-time visibility and motion management during treatment. By leveraging SGRT technology, the Radixact System can automatically hold the beam whenever intrafraction motion is detected. With the central camera boasting a field of view (FOV) exceeding 140 cm, the system promptly detects aspects that a human eye may not have observed on

the console cameras, then reacts instantaneously.

### Respiratory-Gated Treatments

Specifically, for DIBH treatments and other techniques requiring respiratory gating, VitalHold™ utilizes the central camera for precise beam delivery gated with the patient's breathing pattern. VitalHold™ automatically holds the beam when the breathing amplitude deviates from tolerance, minimizing radiation exposure to healthy tissues, particularly in breast cancer patients. Moreover, the system demonstrates the remarkable capability to hold the beam within 100 milliseconds and resume within 1 second.

In addition to its technical prowess, VitalHold™ prioritizes simplicity and efficiency in clinical practice. Through seamless integration with the Radixact System workflow, including automatic beam-holds, healthcare providers can optimize delivery processes. This enhances patient throughput and helps reduce overall treatment times with an average of 10 minutes door-to-door on the Radixact System, with just an average of 2 minutes of beam-on time.

By integrating SGRT capabilities with the Radixact System, including support for DIBH treatments, VitalHold™ empowers healthcare providers to deliver precise,

personalized, and efficient treatments across a wide range of patient cases.

For further information refer to the Radixact System key features and benefits:

<https://www.accuray.com/radixact/>

## Accuray Disclaimers

VitalHold™ is 510(k) cleared and available in the EU market. Availability is subject to regulatory clearance or approval in some markets.

## Medical Advice Disclaimer

Accuray Incorporated as a medical device, the manufacturer cannot and does not recommend specific treatment approaches. Individual results may vary.

## Safety Statement

<https://www.accuray.com/safety-statement/>

## References:

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**Rémi Tannouri**, Clinical Product Manager, joined Accuray in 2020. He brings a decade of experience as a Medical Physicist across various positions in academic and private centers in France. Rémi has a M.Sc. degree in Medical Physics and an engineering degree in Electronics.