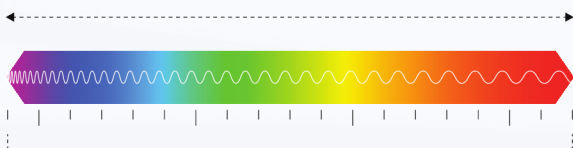


# REAL-TIME POSITION MANAGEMENT (RPM)

RPM is a non-invasive and radiation-free respiratory motion tracking system which helps to stabilize patients' breathing motion during radiotherapy.

The RPM system consists of an infrared tracking camera and an external marker block. The camera will emit infrared light where the marker block reflects it back to the camera. The software then analyzes the captured signal and traces the respiratory motion in real-time.



RPM uses infrared technology to track breathing and guide radiation delivery.



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## Why is RPM Important

Respiratory movement is the major concern in radiotherapy. Ensuring tumor coverage leads to irradiation of a large volume of healthy tissue, and increased risk of side effects.

With RPM, we stabilize tumor position by instructing patients to hold their breaths at comfortable thresholds. This allows oncologists to delineate patient-specific margins and reduce dose to the surrounding tissues.

## FEATURES OF RPM

Therapists will coach patients during radiotherapy, generally holding their breath for 15-20 seconds for 10-20 times during each radiotherapy session, and each session lasting about 10-15 minutes. The advantages of RPM include:

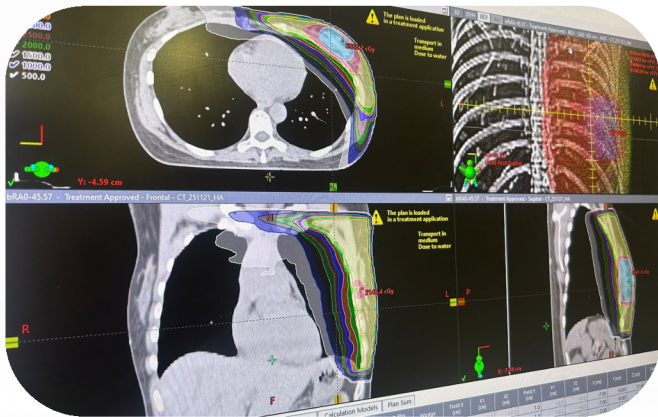
- Improves treatment planning accuracy by reducing tumor movement caused by respiration
- Reduces the risk of side effects
- Reduces respiratory motion artifacts for superior CT resolution



## PLANNING PROCEDURES

Our therapists will coach the patient to hold their breath comfortably and adjust appropriate breath-hold time / thresholds. Patients will have a CT scan with RPM.

Therapists will then use the CT scans to generate a unique and precise radiation treatment plan according to oncologists' prescription.



## TREATMENT PROCEDURES

RPM system continuously tracks the real-time breathing pattern. Therapists deliver treatment when patients are holding their breaths at defined thresholds.

Patients can resume normal breathing in any circumstances, RPM system will reflect the breathing pattern simultaneously and turn off the beam once the breathing cycle is out of the defined thresholds.

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## IMPLEMENTING RPM INTO IGRT

Image-guided radiotherapy (IGRT) is used for verifying patient positioning to adjust any positioning errors, ensuring accurate treatment delivery.

With RPM, we aim to account for intra-fractional target position accuracy by minimizing internal organ movements caused by respiration and further improving treatment accuracy.

