

# Central Coast Cancer Centre

## Radiation Oncology Service

Information about  
**Deep Inspiration Breath Hold (DIBH)**  
Radiotherapy for Left Sided Breast Cancer



All enquiries Phone: (02) 4320 9888 Fax: (02) 4320 9780

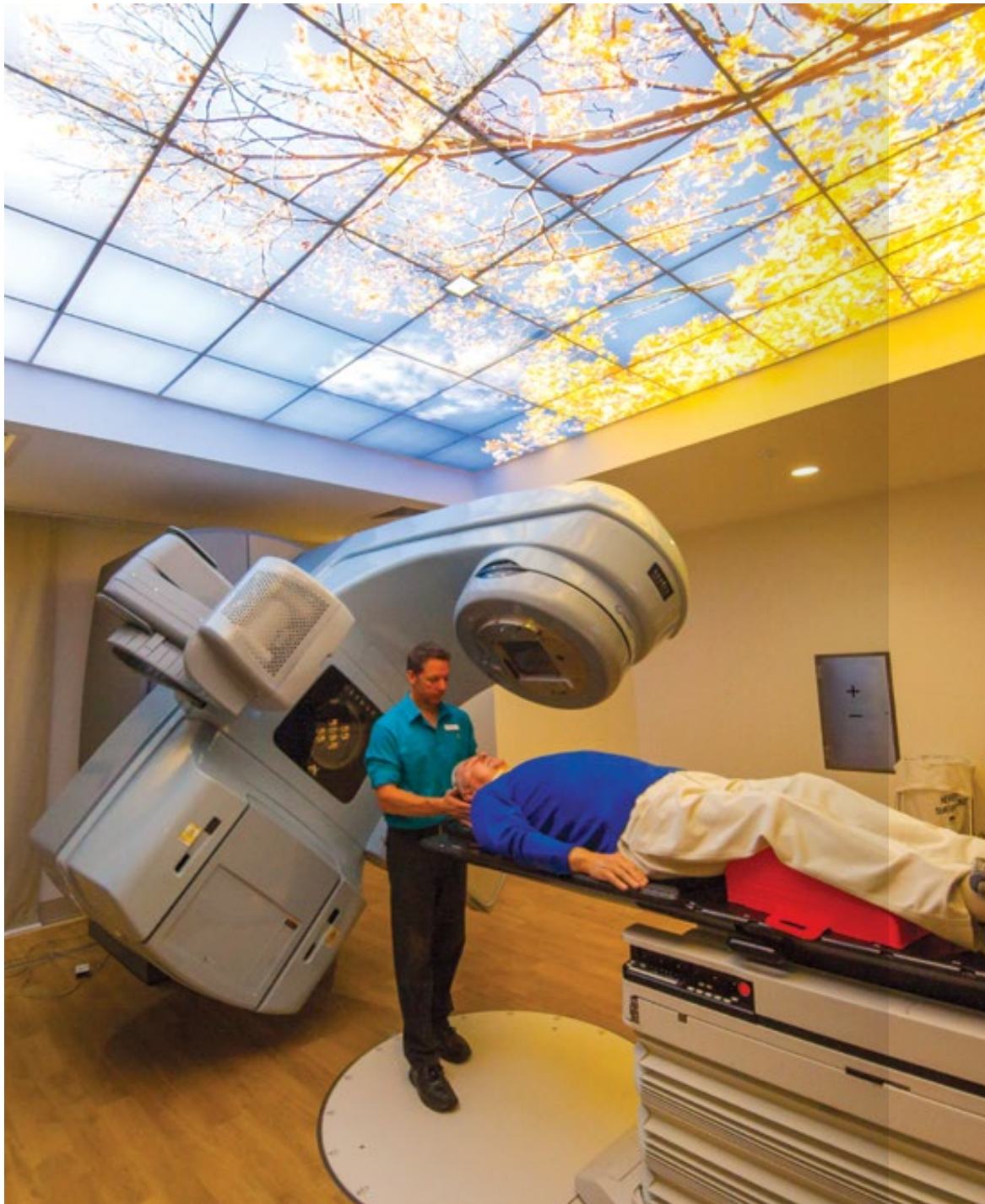


Health  
Central Coast  
Local Health District

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## Introduction

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The Deep Inspiration Breath Hold technique offers advantages for treating left sided breast cancer. In this technique, patients are asked to hold their breath for 20-30 seconds during radiotherapy planning and every day for treatment.

The radiation oncologist may recommend this technique after considering the patient's ability to hold their breath and the potential benefits this technique may offer over other radiotherapy techniques. If patients choose not to go ahead with this treatment, further discussions with the radiation oncologist can identify other standard and safe options of treatment.

## Why use DIBH?

The aim of radiotherapy treatment is to treat the target area (your left breast) whilst keeping the dose to other organs around it as low as possible to avoid unnecessary side effects.

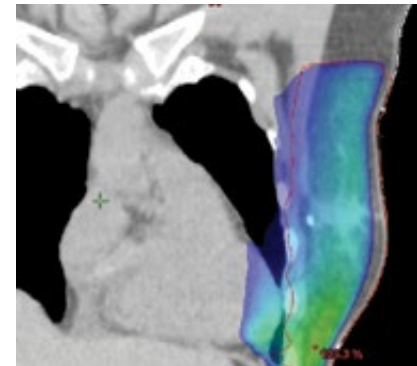
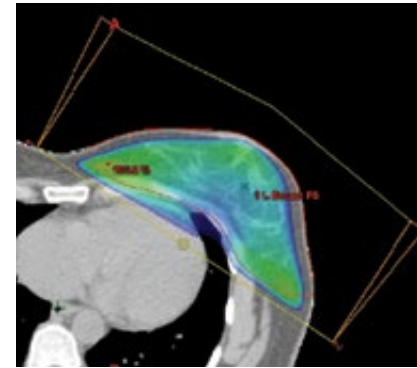
Holding the breath when having left sided breast radiotherapy has several potential benefits:

- It reduces chest wall movement, and improves the accuracy of radiotherapy treatment.
- When taking a deep breath in, the heart moves away from the radiation beam and this potentially helps keep the dose to the heart as low as possible.
- Taking a deep breath can also reduce the radiation dose to the lungs by stretching the lung tissue out of the way of the radiation.

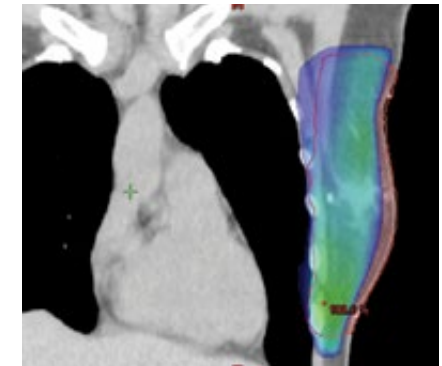
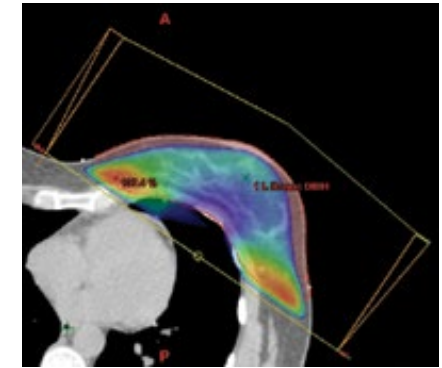
It is important to understand that if patients are unable to proceed with this technique, the radiation oncologist will still take all possible actions to reduce the dose to the heart and lungs as much as possible.

## Heart and lung positions in DIBH

### Free breathing



### DIBH

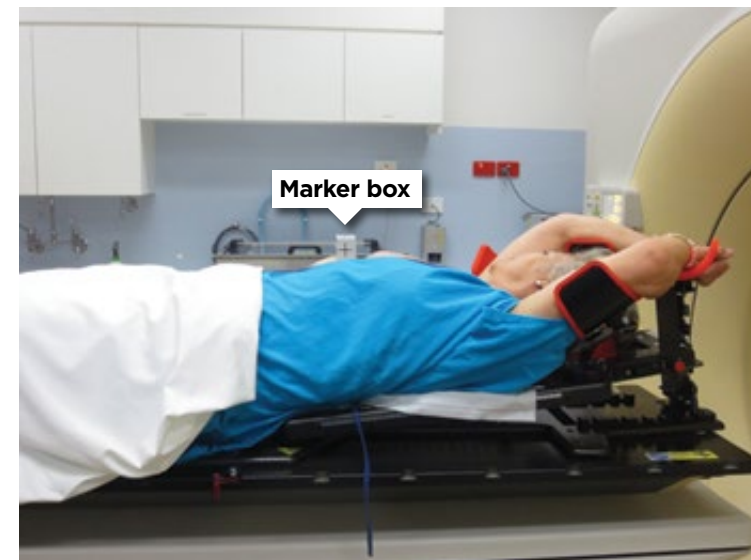
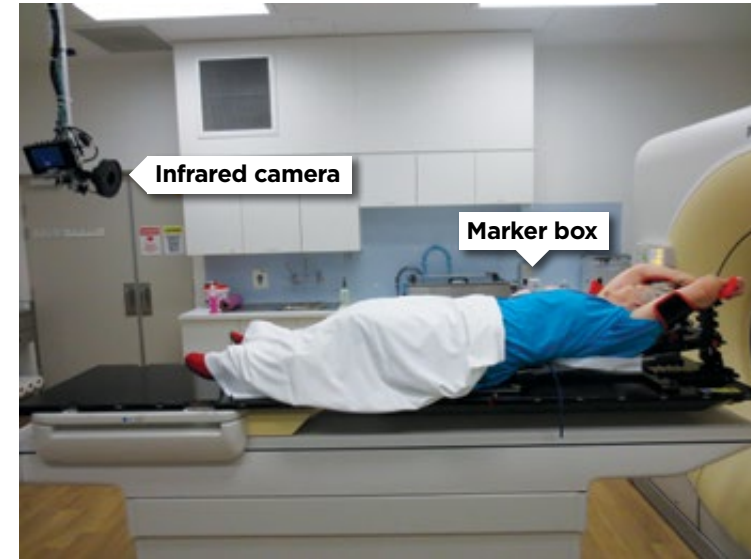
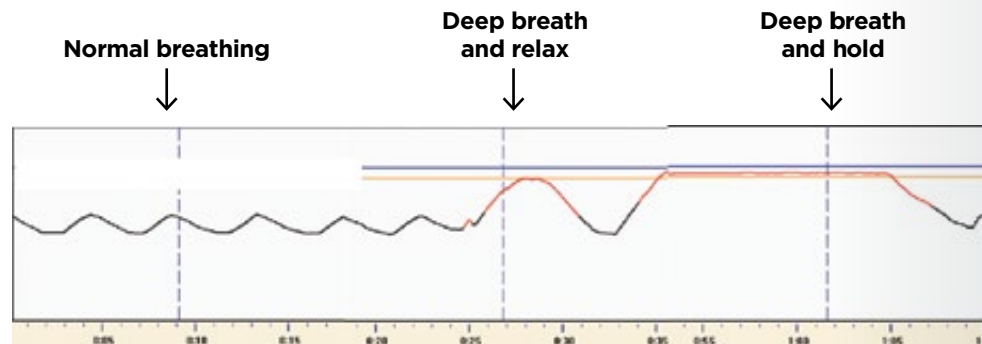


# Radiotherapy Planning Scan

Before the radiotherapy planning scan, the radiation therapist will spend some time explaining the technique and what is expected for the scan and during treatment.

During the CT scan for radiotherapy planning, a small plastic marker box will be placed on the patient's chest and a camera at the end of the bed will trace the movement of this box to measure the natural breathing patterns.

The radiation therapists will then ask the patient to take a deep breath in and hold it for 20-30 seconds. It is important that patients hold their breath at a level that is natural and comfortable, typically at about 80% capacity of the deepest breath. Patients will need to take a similar deep breath every day during treatment. The radiation therapists may do this several times to make sure patients are able to hold their breath comfortably before completing the scan.



# Radiotherapy Treatment

When patients arrive for their daily radiotherapy treatment, the radiation therapists will help position the patient the same way as the planning CT scan. They will then go outside the treatment room where they can see the breathing pattern on a computer screen (Figure 1).

First, the radiation therapists will ask patients to take several normal breaths in and out for relaxation. Next, they will prompt patients to take a deep breath in and hold it. It is important that patients take a deep breath in when they are ready and comfortable to do so.

The blue area in Figure 1 shows the zone when patients can comfortably hold their breath. It is a personalised threshold that is based on the patient's breathing patterns. The blue zone is also when the heart and lungs are most likely to be out of the way of the radiation beam.

When patients take a deep breath in, similar to what they did in the planning CT scan, the yellow bar enters the blue zone and turns green. The treatment machine will only turn on and deliver radiotherapy when the bar turns green. When patients breathe out, the bar will turn yellow and the machine will stop giving radiotherapy.

Patients may need to hold their breath a few times to complete the whole treatment.

**Please note:** The treatment machine will only deliver radiation when the patient is holding their breath and the bar turns green. It will not treat incorrectly if patients breathe out. If the breath does not raise the bar high enough or has raised it too high out of the blue zone, the radiation therapist will guide patients on how to change their breathing. They will be monitoring the patient the whole time they are in the treatment room. Please speak to the radiation oncologist for more information on DIBH, or to ask any questions about the technique.

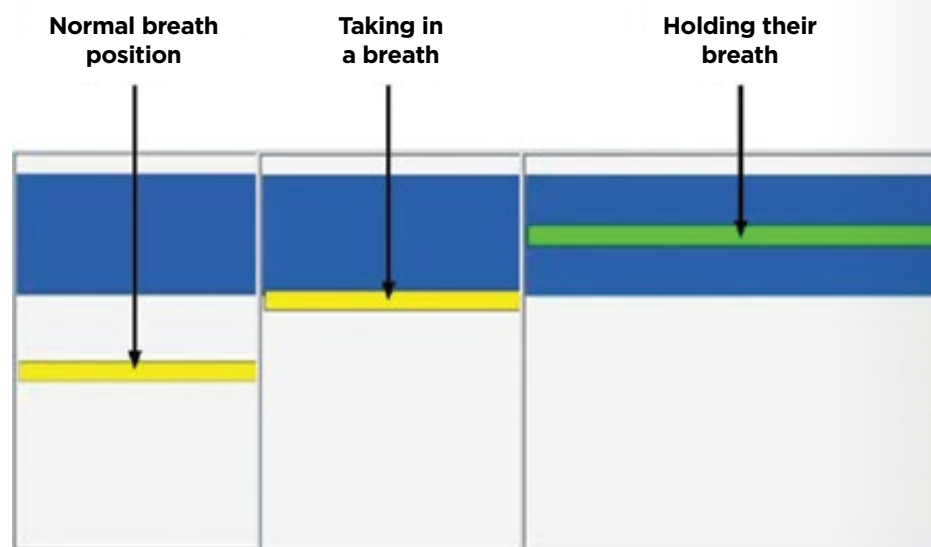


Figure 1

# Central Coast Cancer Centre

## **General enquires**

Phone: (02) 4320 9888

## **Doctor referrals**

Fax: (02) 4320 9780

[www.cclhd.health.nsw.gov.au/ourservices/CCCS](http://www.cclhd.health.nsw.gov.au/ourservices/CCCS)