# Lay summary for completed research projects

| CCR No and Study Title: | CCR3593  
The HeartSpare Study (Stage 1) - Optimisation and Individualisation of Heart-Sparing Breast Radiotherapy Techniques |
|------------------------|--------------------------------------------------------------------------------------------------|
| CI and Sponsor names:  | Dr Anna Kirby  
The Royal Marsden NHS Foundation Trust |
| Study opening date:    | 13/02/2012  
Study closing date:    | 06/05/2014 |
| Proposal and Objectives: | **Patients undergoing breast radiotherapy are standardly treated lying on their backs and breathing in-and-out naturally. Doses to the heart need to be minimised and this can be achieved in two ways, either by the patient holding their breath during treatment or by lying on their fronts so that the breast falls away from the chest wall and heart.**  

The HeartSpare study had two main objectives as follows:  

**HeartSpare Stage 1A**  
To determine whether or not breast radiotherapy delivered using a natural breath-hold technique (VBH) reduces heart doses to the same extent and with the same consistency of position as machine-assisted breath-hold (ABC)  

**HeartSpare Stage 1B**  
To test, in larger-breasted women, whether or not holding breath during treatment reduces heart doses to the same extent as treating patients on their fronts (prone treatment).  

In both studies, patients completed questionnaires assessing how comfortable they were during treatment and radiographers completed questionnaires on ease of use of the techniques. |
| Main Findings: | **HeartSpare Stage 1A**  
23 patients were recruited between March -August 2012.  
Heart doses were as low for natural breath-hold (VBH) as they were for machine-assisted breath-hold (ABC).  
Patients found VBH significantly more comfortable than ABC and |
Radiographers found VBH significantly more satisfactory.

There was no significant difference in CT-planning or total treatment session times between the two techniques, although treatment setup times were shorter with VBH than ABC.

The natural breath-hold technique is cheaper to deliver as no additional specialised equipment is required.

**Heartspar Stage 1B**

34 patients were recruited between January 2013 - April 2014. Heart doses were very low for both the breath-hold (VBH) and the face-down (prone) technique. However, the breath-hold technique reduced heart doses to a greater extent than prone treatment.

Patient positioning for radiotherapy was more consistent using the breath-hold technique than the prone technique.

Radiotherapy treatment session times were significantly shorter with VBH than prone treatment.

Patients found VBH more comfortable than prone treatment at all stages of the patient.

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<th>Implications for practice/future research:</th>
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**Heartspar Stage 1A**

The natural breath-hold technique is now the standard of care for many patients with left breast cancer. The technique has since been tested in a larger trial involving ten UK radiotherapy centres.

The Royal College of Radiologists' Breast Radiotherapy Consensus Guidelines now recommend that all UK radiotherapy centres have a breath-hold technique available.

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**Heartspar Stage 1A**

The study findings were presented in oral and poster formats at the NCRI Conference (Liverpool) in November 2012. The study findings were subsequently published in the peer reviewed literature, reference below.


**Heartspar Stage 1B**

Study findings were presented in oral and poster formats at the NCRI Conference (Liverpool) in November 2014. A manuscript of the study has since been published: The UK HeartSpare Study (Stage IB): randomised comparison of a voluntary breath-hold technique and prone radiotherapy after breast conserving surgery. Bartlett FR, Colgan RM, Donovan EM, McNair HA, Carr K, Evans PM, Griffin C, Locke I, Haviland JS, Yarnold