Support, Positioning and Organ Stabilisation during Breast Cancer Radiation Therapy : SuPPORT 4 All Study

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Support, Positioning and Organ Stabilisation during Breast Cancer Radiation Therapy: SuPPORT 4 All Study

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On behalf of the SuPPORT 4 All Project Team

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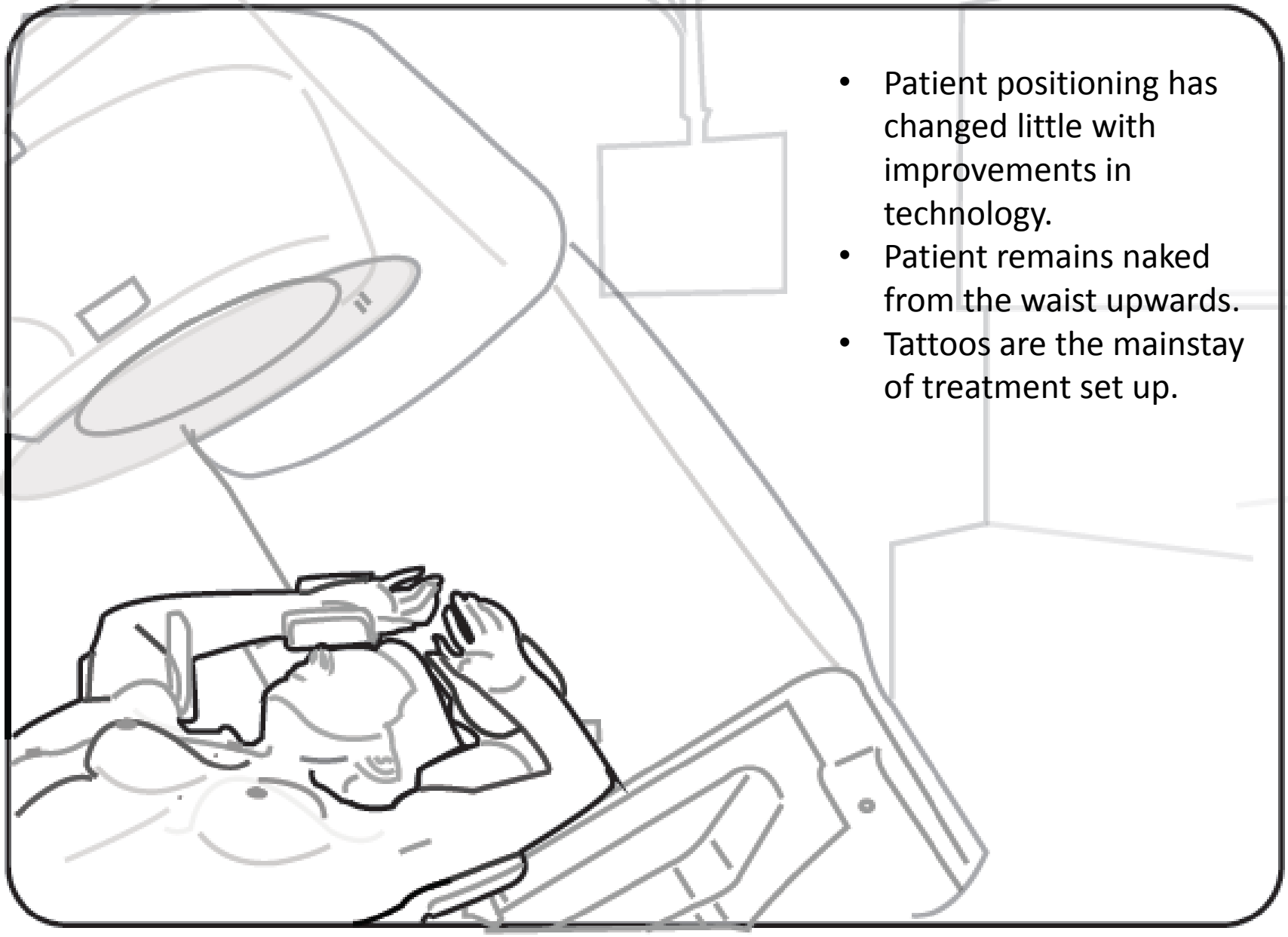
DISCLOSURE

- I have no financial relationships to declare.

Today in the UK 125 women will be told they have breast cancer

Globally around 1.5 million are diagnosed with the disease annually

Around 80% will survive the disease beyond 5 years, survival projected to reach 1.7 million by 2040



- Patient positioning has changed little with improvements in technology.
- Patient remains naked from the waist upwards.
- Tattoos are the mainstay of treatment set up.

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Why is breast immobilisation needed now?

- Greater use of IMRT/3D conformal, SIB or partial breast irradiation techniques are used where greater precision is needed.
- Use of IMN irradiation requiring movement of the non-irradiated breast out of the field.
- Concerns over dose to organs at risk (specifically heart in those treated for a left breast cancer) and
- Unsatisfactory techniques for women with large, pendulous or relaxed breasts.

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Review article

A systematic review of methods to immobilise breast tissue during adjuvant breast irradiation

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ABSTRACT

Greater use of 3D conformal, Intensity Modulated Radiotherapy (IMRT) and external beam partial breast irradiation following local excision (LE) for breast cancer has necessitated a review of the effectiveness of immobilisation methods to stabilise breast tissue.

To identify the suitability of currently available breast (rather than thorax) immobilisation techniques an appraisal of the literature was undertaken. The aim was to identify and evaluate the benefit of additional or novel immobilisation approaches (beyond the standard supine, single arm abducted and angled breast board technique adopted in most radiotherapy departments). A database search was supplemented with an individual search of key radiotherapy peer-reviewed journals, author searching, and searching of the grey literature. A total of 27 articles met the inclusion criteria.

The review identified good reproducibility of the thorax using the standard supine arm-pole technique. Reproducibility with the prone technique appears inferior to supine methods (based on data from existing randomised controlled trials). Assessing the effectiveness of additional breast support devices (such as rings or thermoplastic material) is hampered by small sample sizes and a lack of randomised data for comparison.

Attention to breast immobilisation is recommended, as well as agreement on how breast stability should be measured using volumetric imaging.

Time to Change our Thinking

Mahe MA, Classe JM, Dravet F, Cussac A, Cuilliere JC. Preliminary results for prone-position breast irradiation. International Journal of Radiation Oncology*Biology*Physics 2002 Jan 1;52(1):156-60.

Aim of the study

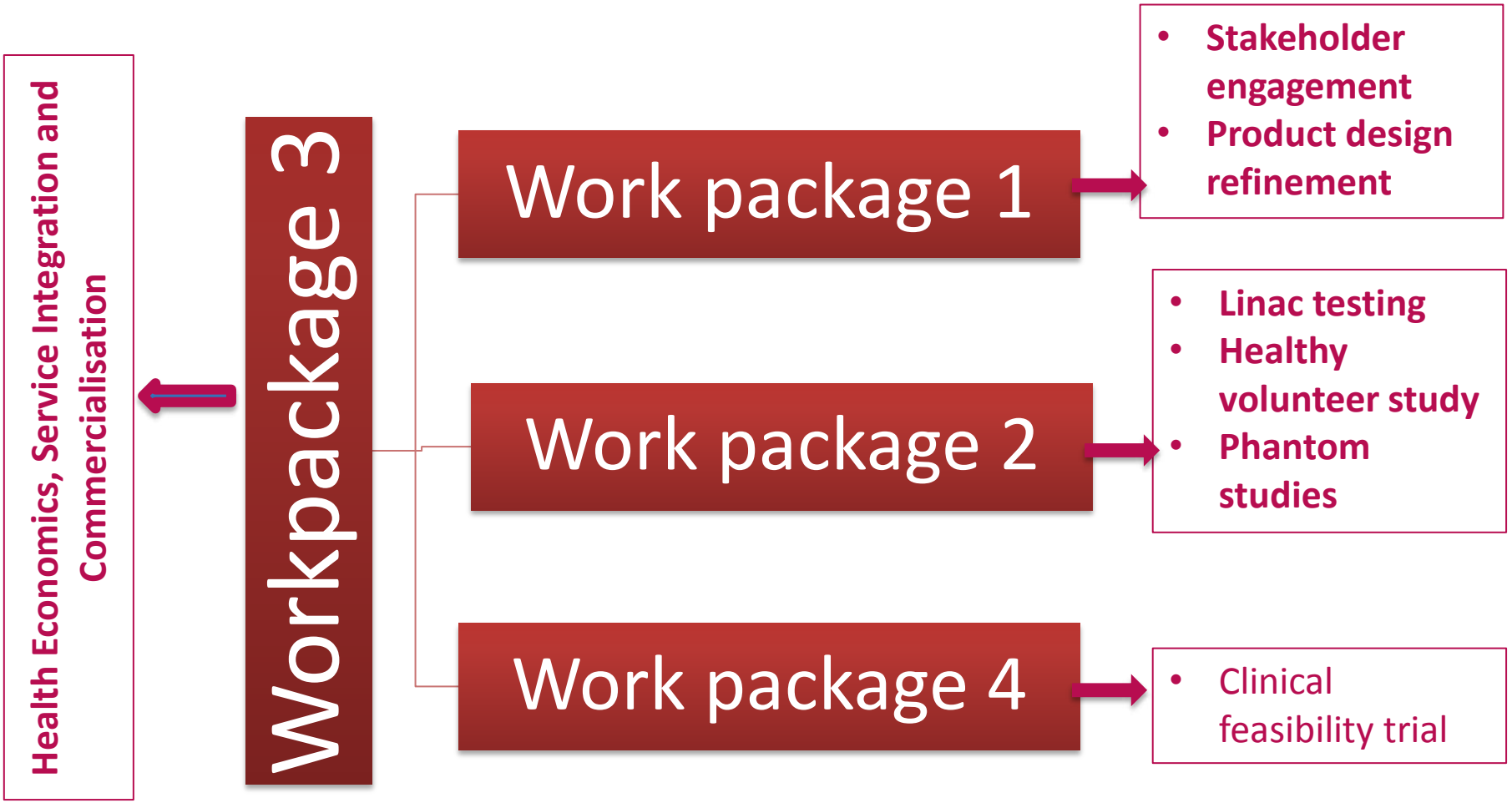
To refine, produce and test a support bra for immobilising breast tissue during breast irradiation for women that have been diagnosed with breast cancer (and have undergone removal of the tumour leaving an intact breast).

The primary endpoint is a support bra that is technically acceptable to health-care professionals (HCPs) and aesthetically acceptable to patients.

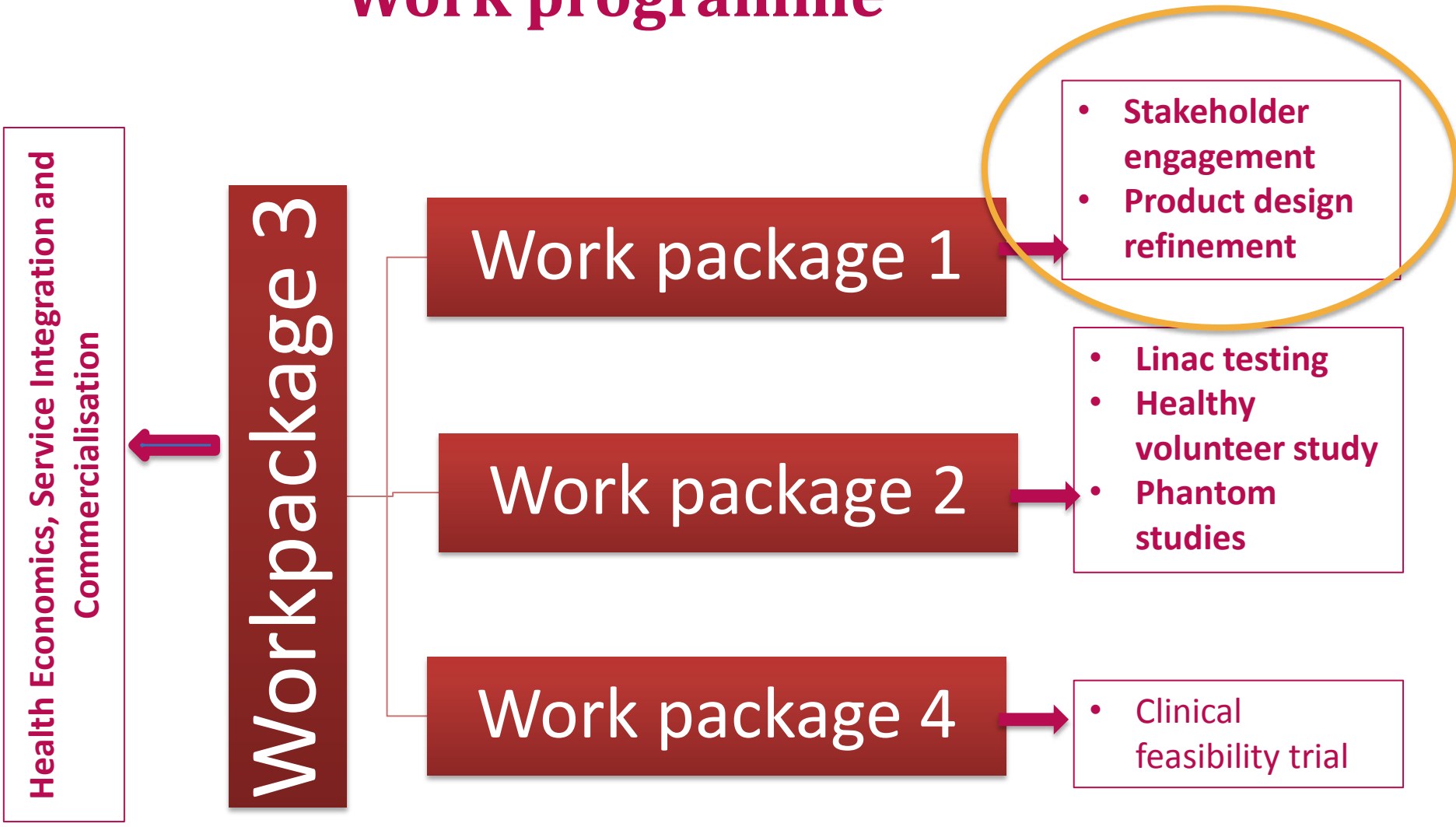
Key requirements

1. Accuracy
2. Reproducibility
3. Reducing side effects of RT
4. Improve dignity

Work programme



Work programme



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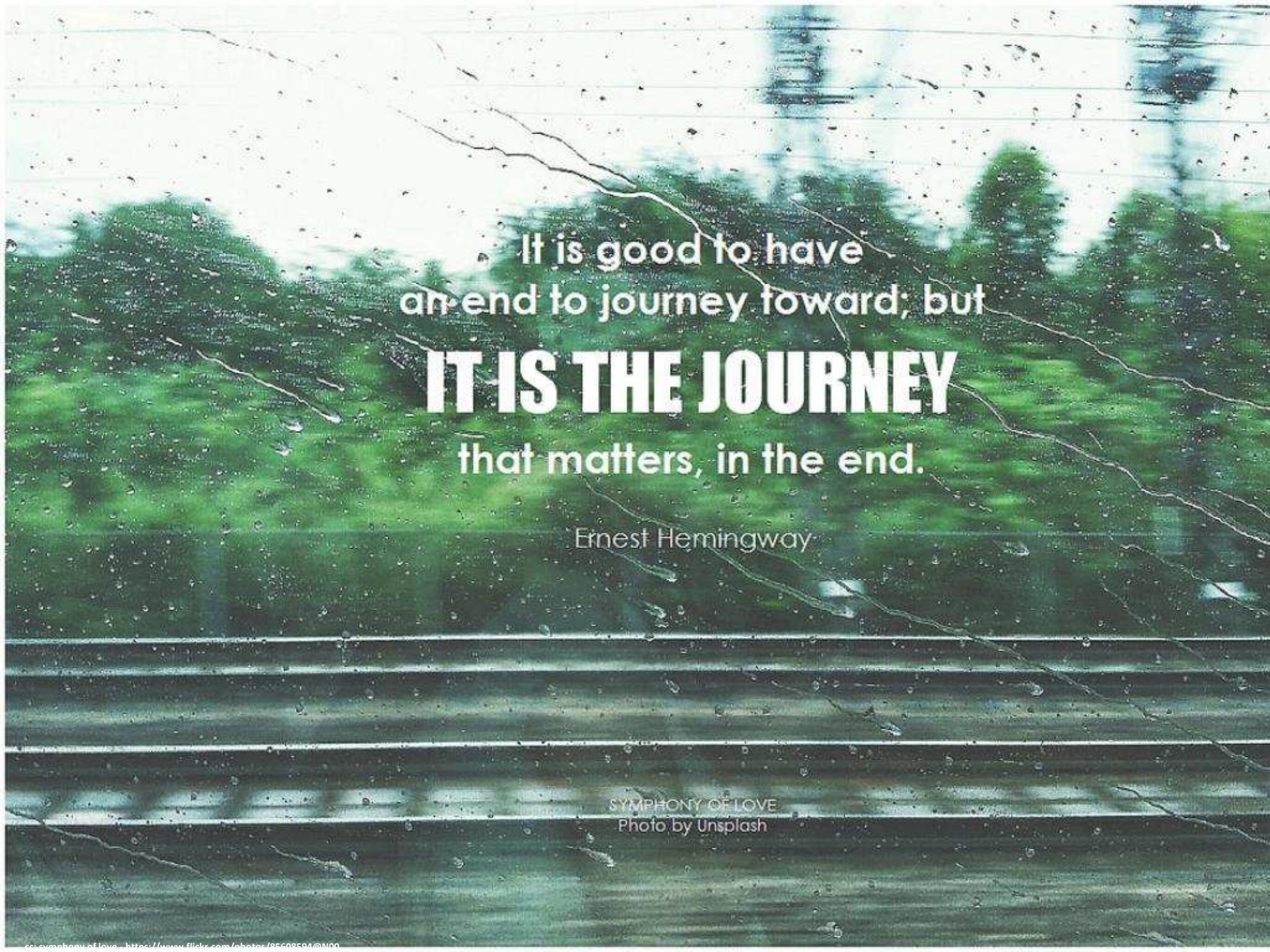
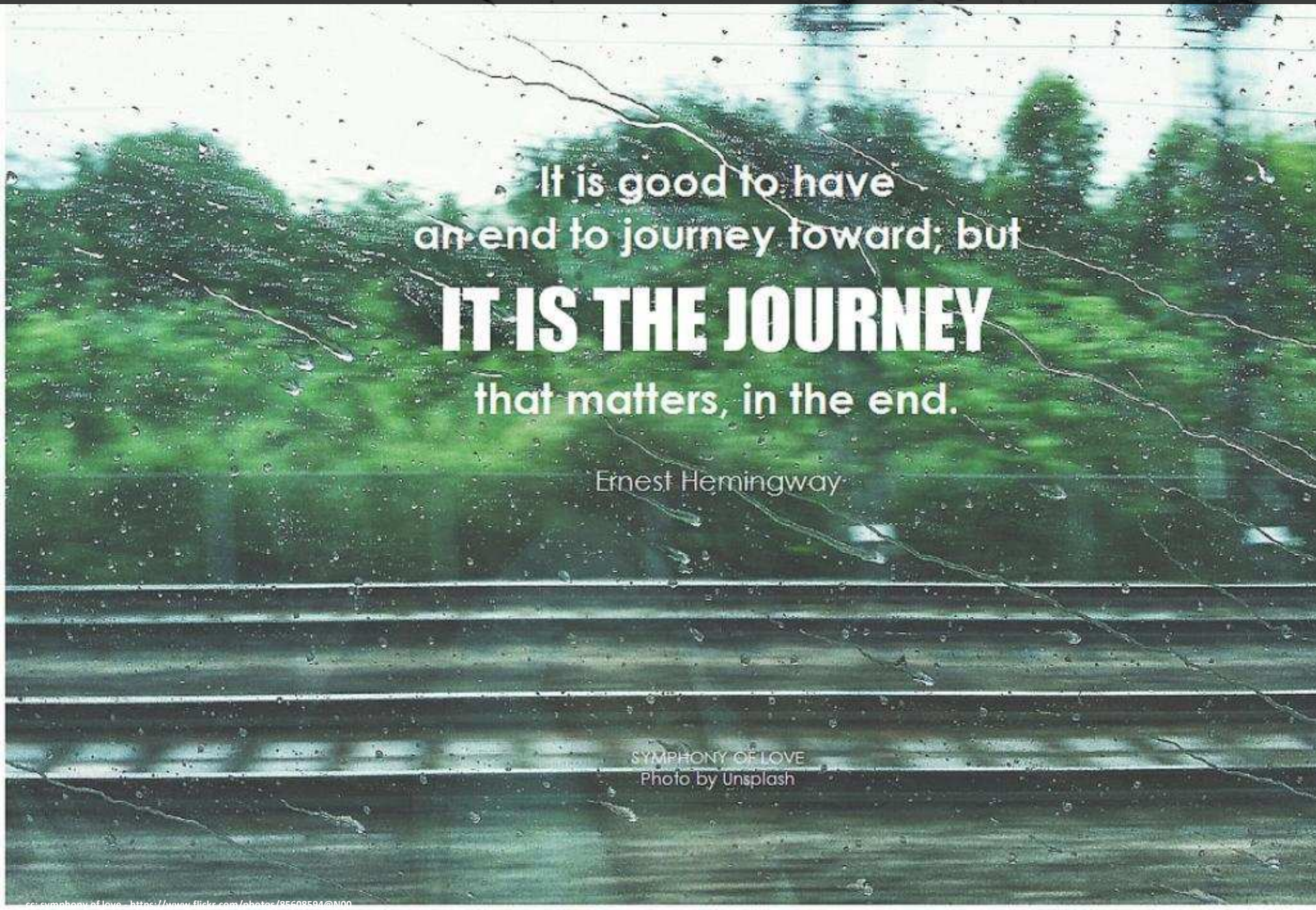
User and HCP Participatory Co-Design Workshops (n=19)

- Participants were sent a diagram of the radiotherapy pathway and asked to write on it their experiences- this formed the focus of the discussions in the first part of each co-design workshop.
- Design images were used to promote discussion.
- Physical prototypes to promote free discussion.
- Audio recorded (7 hours of audio recorded discussions).

S4 SUPPORT4ALL



Tell us about your radiotherapy Journey



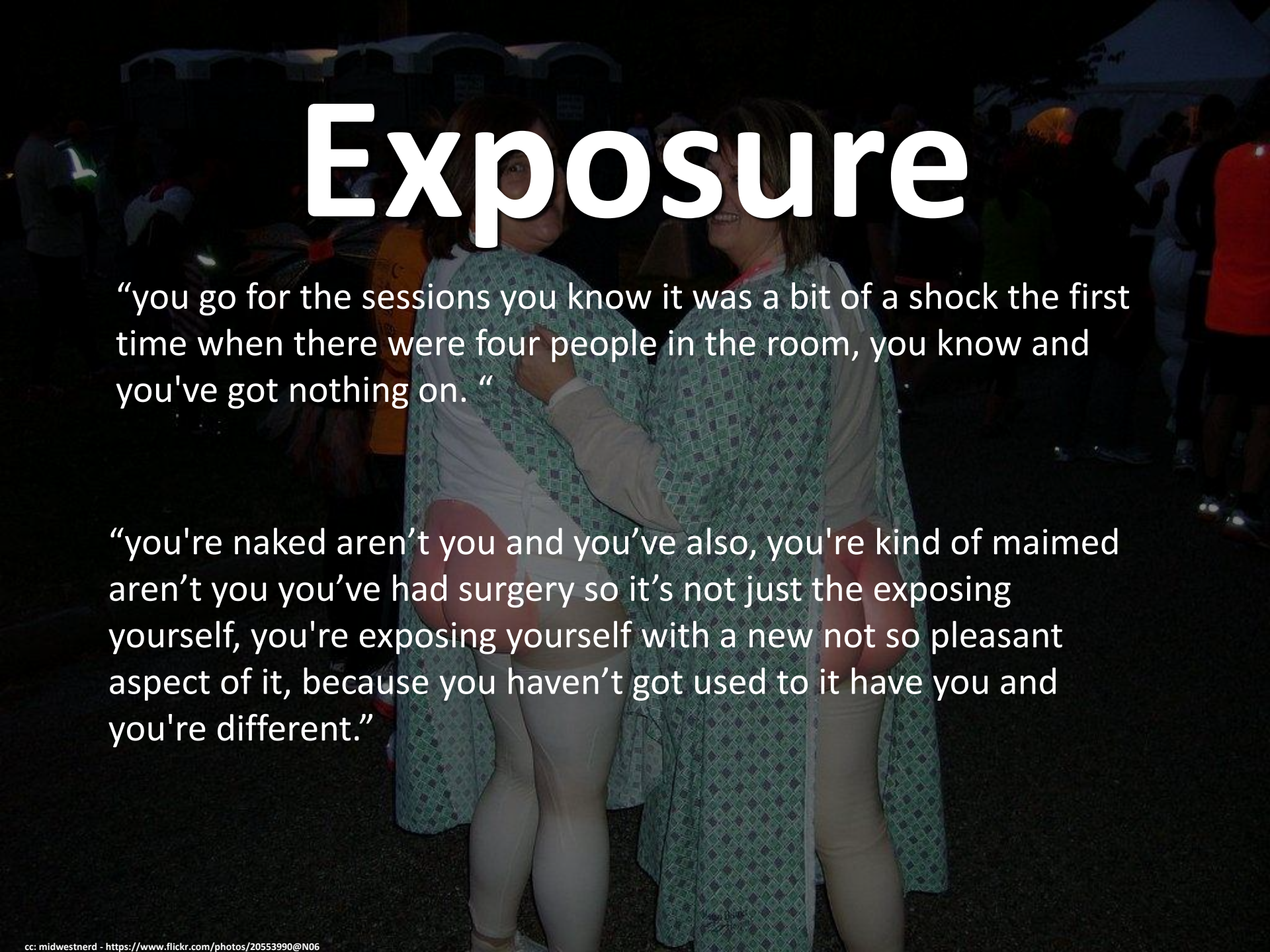
Categories from users	Sub Categories
Information needs	Knowledge of Treatment Mis-information Timing of Information Preconceptions of RT
Exposure	Issues of Modesty Wearing a gown in a public place
Emotional experience	Feeling embarrassed
Interactions with HCPs	Staff attitudes Feeling a burden
Finding your voice	Being listened to Disempowered
Technology focused care	Impersonal Systems and processes including having confidence in staff and the process Improving the efficiency of practice
Choice	Communication issues Feeling oppressed Having to have tattoos
Fear	Fear about treatment accuracy, minimising errors Feeling frightened
The waiting room experience	Inappropriate entertainment
Getting to radiotherapy	Physically getting there to the radiotherapy centre The emotional journey-what has come before (including chemotherapy, surgery the end of a long process)
Impact of side effects	Skin reactions Finding a comfortable bra to wear during RT period
The changed self	Lost self confidence Change to personal image/body image Wanting to feel normal

Finding your voice-Being Listened to

Finding your voice being listened to

“I had the same experience actually and I noticed that it was swelling and I was told it’s a normal reaction that it was lymphedema and then I didn’t actually realise until three years later when I got really bad cellulitis septicaemia actually as a result of it and was totally being ignored and it wasn’t discussed as a side effect in the initial information giving.”

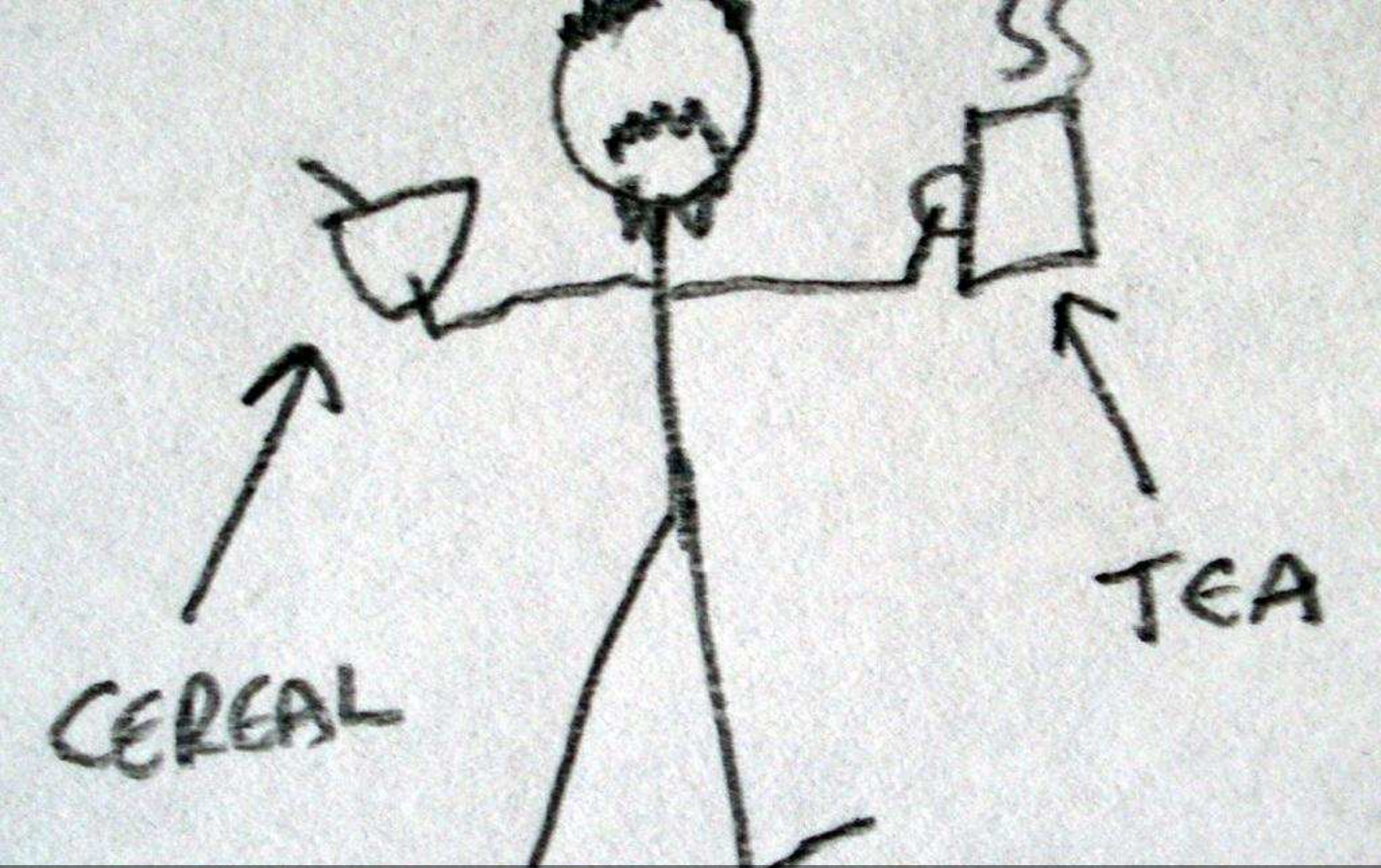
Exposure



"you go for the sessions you know it was a bit of a shock the first time when there were four people in the room, you know and you've got nothing on. "

"you're naked aren't you and you've also, you're kind of maimed aren't you you've had surgery so it's not just the exposing yourself, you're exposing yourself with a new not so pleasant aspect of it, because you haven't got used to it have you and you're different."

Categories	Sub categories
Feedback on the prototype	Bra design
	Bra challenges
	HCP worries
	Reference to other immobilisation methods
	Bra changing the patient experience
Technical Challenges	Delays to treatment start
	Differences between patient types
	Impact of a non-standard approach to RT
	Lateral beam difficulties for women with larger breasts
	Reproducibility of existing technique
	Technical issues with positioning on board
	Treating IMN
	Treating photon boosts
	Use of bolus



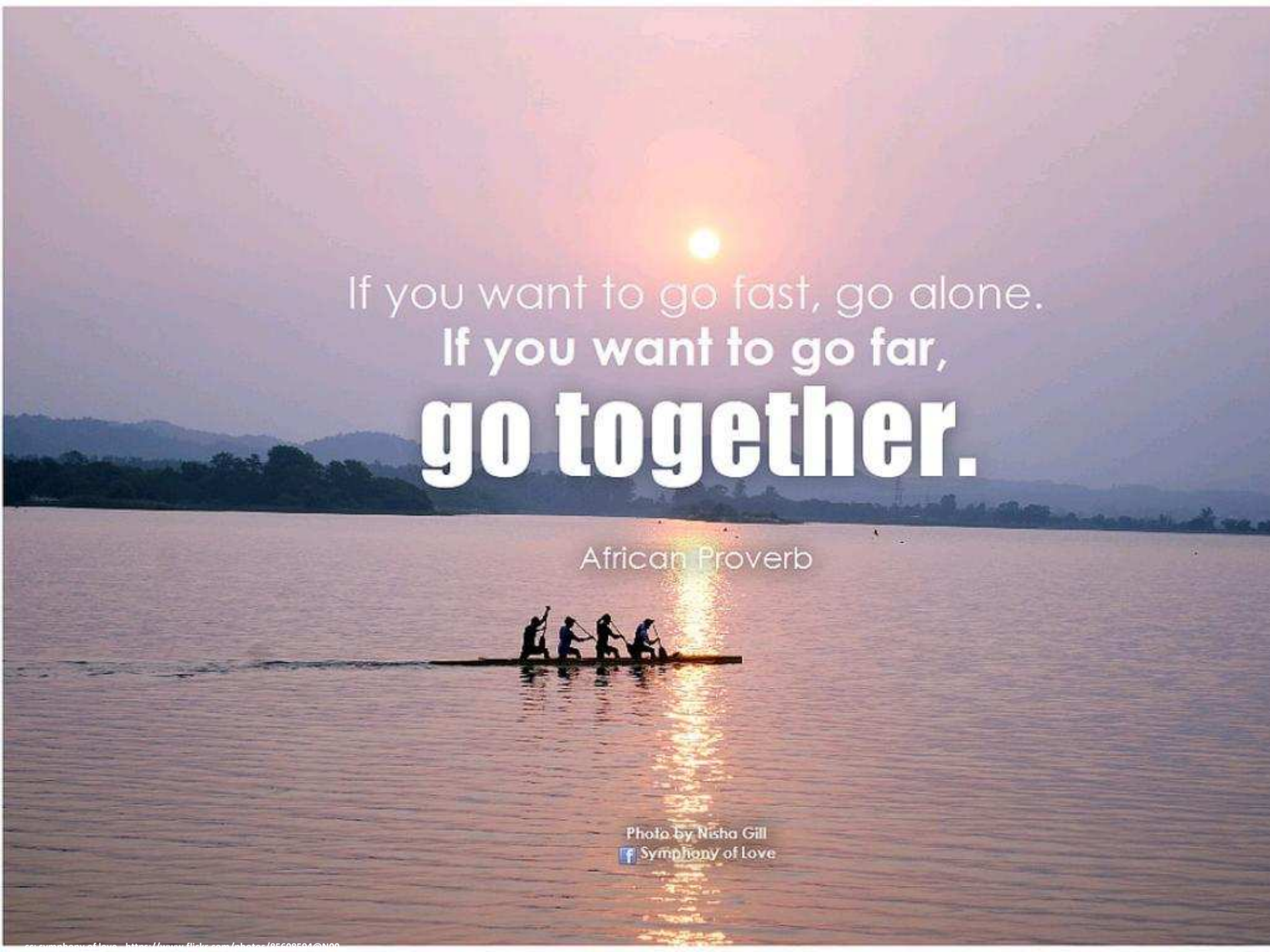
Technical challenges

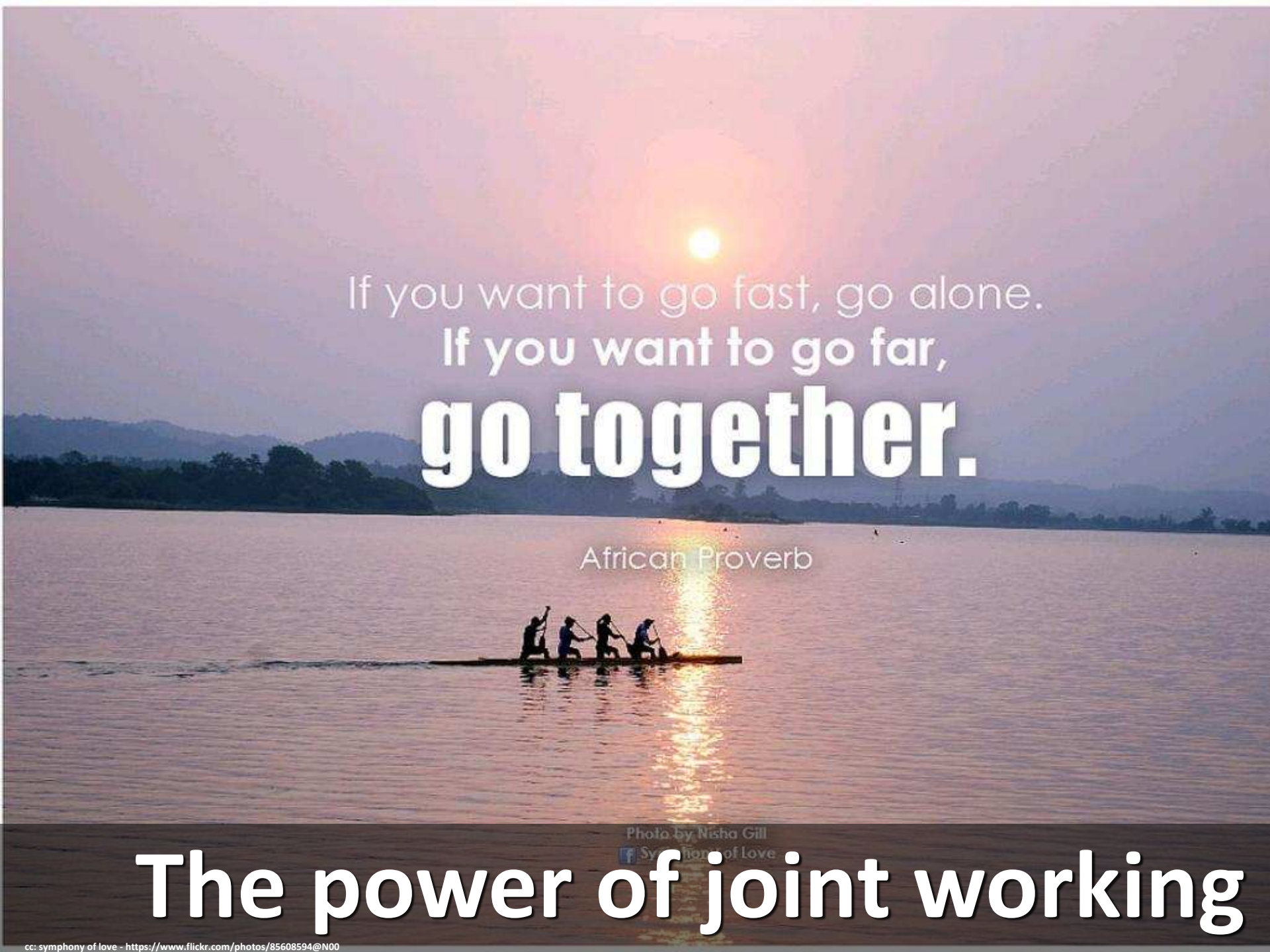
Technical challenges

“We found with some of the casts if you mould it too tight it pushes the breast tissue up and it ends up going above as well.”

“We can't do deep inspiration with Orfit because the board, they can't take the deep breath in because we are restricting them already “

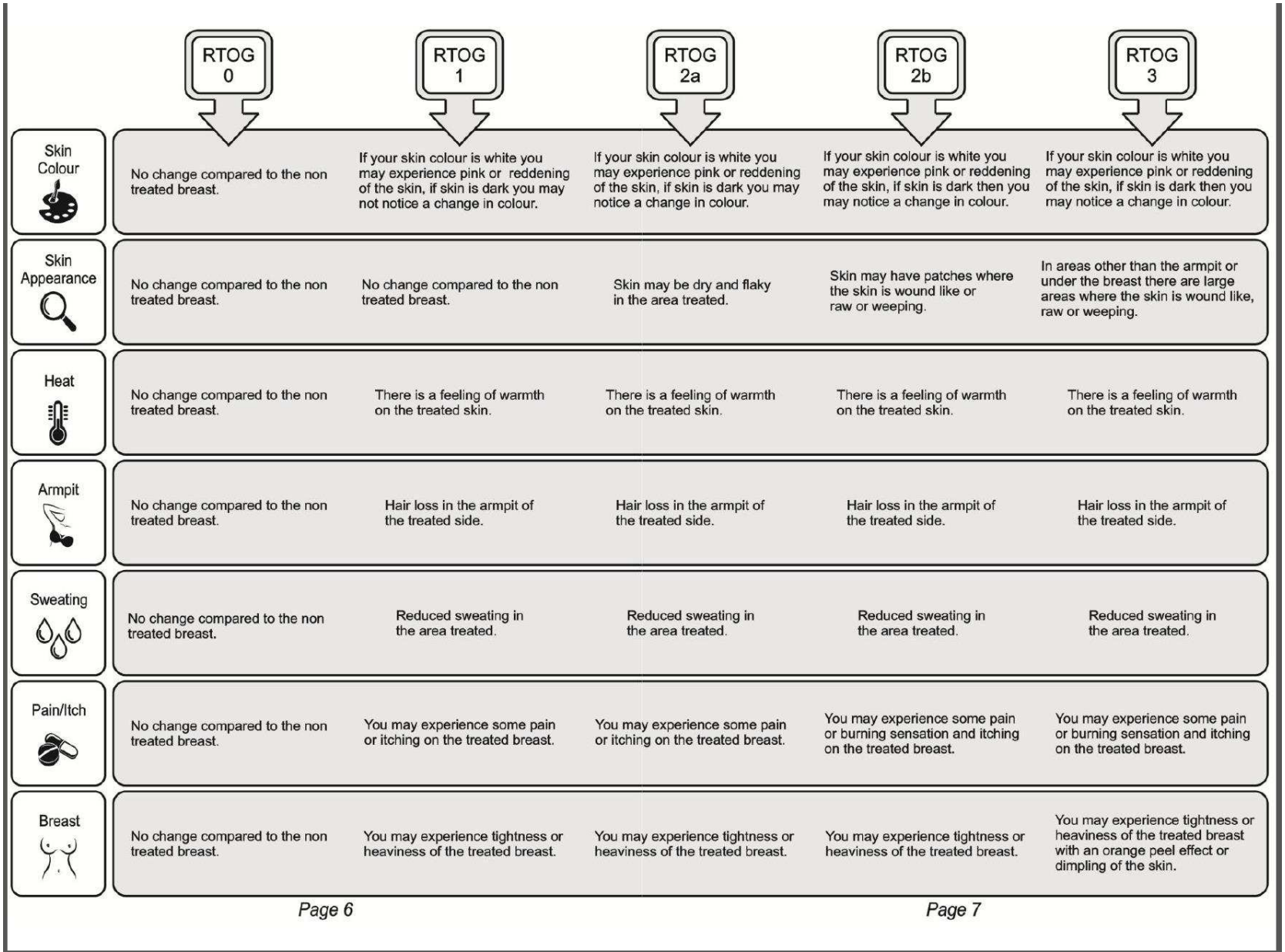
“If you're wearing a bra and there's identifying skin changes, infection, changes in seroma I guess, things like that could be an issue.”


If you want to go fast, go alone.
If you want to go far,
go together.
African Proverb
Photo by Nisha Gill
Symphony of Love



The power of joint working

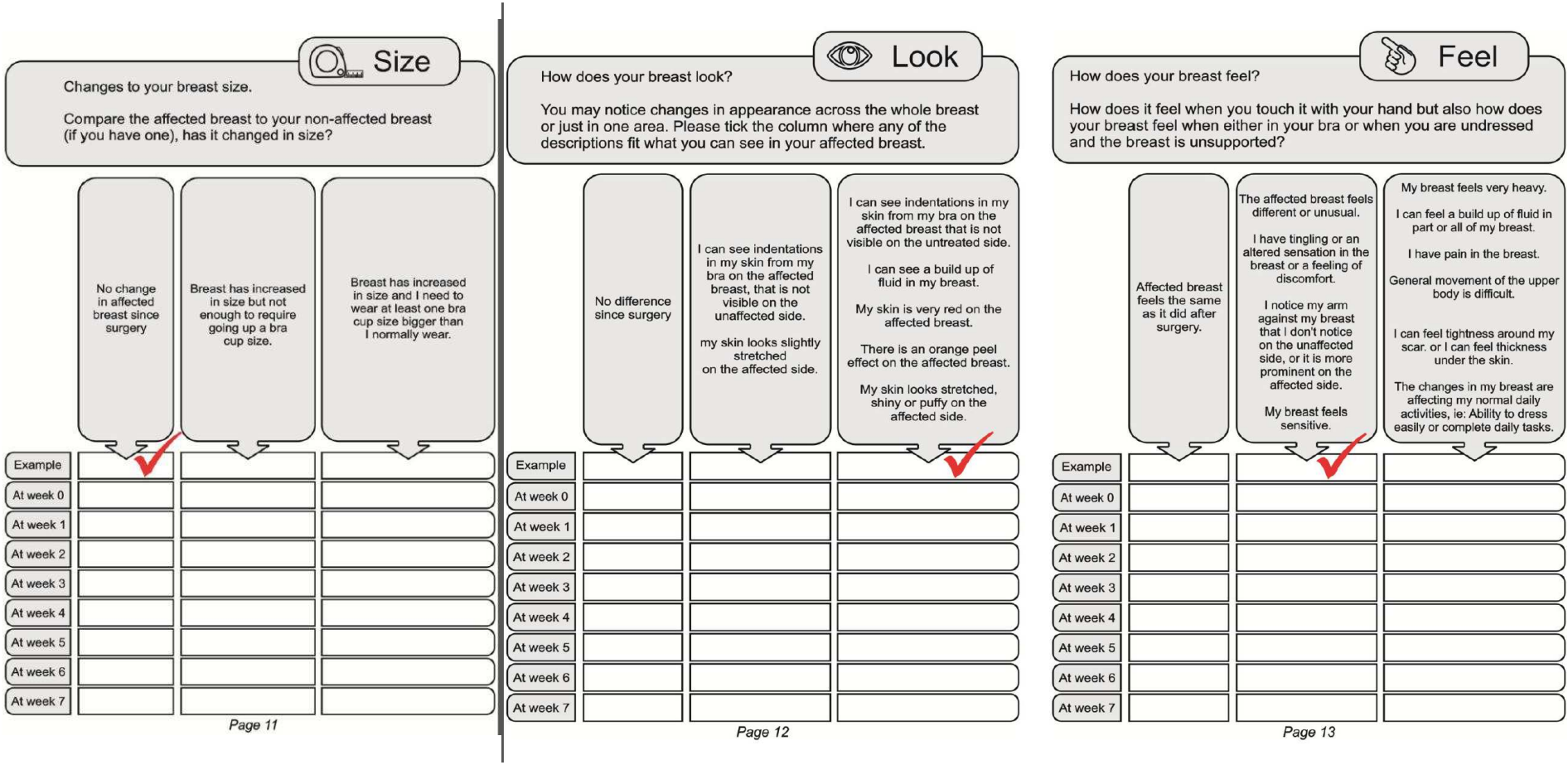
RTOG Patient skin scoring



	RTOG 0	RTOG 1	RTOG 2a	RTOG 2b	RTOG 3
Skin Colour	No change compared to the non treated breast.	If your skin colour is white you may experience pink or reddening of the skin, if skin is dark you may not notice a change in colour.	If your skin colour is white you may experience pink or reddening of the skin, if skin is dark you may notice a change in colour.	If your skin colour is white you may experience pink or reddening of the skin, if skin is dark then you may notice a change in colour.	If your skin colour is white you may experience pink or reddening of the skin, if skin is dark then you may notice a change in colour.
Skin Appearance	No change compared to the non treated breast.	No change compared to the non treated breast.	Skin may be dry and flaky in the area treated.	Skin may have patches where the skin is wound like or raw or weeping.	In areas other than the armpit or under the breast there are large areas where the skin is wound like, raw or weeping.
Heat	No change compared to the non treated breast.	There is a feeling of warmth on the treated skin.	There is a feeling of warmth on the treated skin.	There is a feeling of warmth on the treated skin.	There is a feeling of warmth on the treated skin.
Armpit	No change compared to the non treated breast.	Hair loss in the armpit of the treated side.	Hair loss in the armpit of the treated side.	Hair loss in the armpit of the treated side.	Hair loss in the armpit of the treated side.
Sweating	No change compared to the non treated breast.	Reduced sweating in the area treated.	Reduced sweating in the area treated.	Reduced sweating in the area treated.	Reduced sweating in the area treated.
Pain/Itch	No change compared to the non treated breast.	You may experience some pain or itching on the treated breast.	You may experience some pain or itching on the treated breast.	You may experience some pain or burning sensation and itching on the treated breast.	You may experience some pain or burning sensation and itching on the treated breast.
Breast	No change compared to the non treated breast.	You may experience tightness or heaviness of the treated breast.	You may experience tightness or heaviness of the treated breast.	You may experience tightness or heaviness of the treated breast.	You may experience tightness or heaviness of the treated breast with an orange peel effect or dimpling of the skin.

Breast Oedema

SizE, Look, FeeL- SELF assessment



Size

Changes to your breast size.

Compare the affected breast to your non-affected breast (if you have one), has it changed in size?

	No change in affected breast since surgery	Breast has increased in size but not enough to require going up a bra cup size.	Breast has increased in size and I need to wear at least one bra cup size bigger than I normally wear.
Example	✓		
At week 0			
At week 1			
At week 2			
At week 3			
At week 4			
At week 5			
At week 6			
At week 7			

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Look

How does your breast look?

You may notice changes in appearance across the whole breast or just in one area. Please tick the column where any of the descriptions fit what you can see in your affected breast.

	No difference since surgery	I can see indentations in my skin from my bra on the affected breast, that is not visible on the unaffected side. my skin looks slightly stretched on the affected side.	I can see indentations in my skin from my bra on the affected breast that is not visible on the untreated side. I can see a build up of fluid in my breast. My skin is very red on the affected breast. There is an orange peel effect on the affected breast. My skin looks stretched, shiny or puffy on the affected side.
Example			✓
At week 0			
At week 1			
At week 2			
At week 3			
At week 4			
At week 5			
At week 6			
At week 7			

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Feel

How does your breast feel?

How does it feel when you touch it with your hand but also how does your breast feel when either in your bra or when you are undressed and the breast is unsupported?

	Affected breast feels the same as it did after surgery.	The affected breast feels different or unusual. I have tingling or an altered sensation in the breast or a feeling of discomfort. I notice my arm against my breast that I don't notice on the unaffected side, or it is more prominent on the affected side. My breast feels sensitive.	My breast feels very heavy. I can feel a build up of fluid in part or all of my breast. I have pain in the breast. General movement of the upper body is difficult. I can feel tightness around my scar. or I can feel thickness under the skin. The changes in my breast are affecting my normal daily activities, ie: Ability to dress easily or complete daily tasks.
Example		✓	
At week 0			
At week 1			
At week 2			
At week 3			
At week 4			
At week 5			
At week 6			
At week 7			

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1. Currently- Healthy Volunteer 3D Surface scanning
2. Clinical Feasibility Study

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PROJECT BACKGROUND

Today in the UK around 130 women will be told they have breast cancer, globally around 1.5 million women are diagnosed with the disease annually. The main treatment for breast cancer is surgery, where surgery has involved removal of the lump only retaining the whole breast, radiotherapy will be given to the breast after surgery. With over 80 percent of women surviving breast cancer beyond five years it is important that the treatments given

Support Positioning and Organ Registration during Breast cancer Radiation Therapy: The SuPPORT 4 ALL study

www.support4all.org.uk follow us on twitter @SuPPORT4A