


Equity, Equality, Diversity and Inclusion

Professor Heidi Probst



The background of the slide features a close-up photograph of wooden blocks, similar to Scrabble tiles, arranged on a wooden surface. A prominent row of blocks in the foreground spells out the word 'RESEARCH' in capital letters. Other blocks with letters like 'G', 'N', 'I', 'L', 'R', and 'A' are scattered around. A semi-transparent circular overlay is positioned on the left side of the image, containing the text for the learning objectives.

Learning Objectives

By the end of the session participants will be able to:

- Understand the importance of diversity and inclusion in research design, practice, and dissemination.
- Identify EEDI-related biases and barriers in their own research fields.
- Apply inclusive research practices in recruitment, methodology, and reporting.
- Critically assess case studies for EEDI implications.

CONTENT

- Why is EEDI important for researchers?
- Frameworks and principles that guide EEDI practice in research,
- Some examples of how EEDI is currently considered in radiotherapy research,
- How researchers can ensure clinical studies and technical experimental studies are considerate of all sub-groups in the population.
- Action planning diversity and inclusivity in your own radiotherapy research.



Heidi Probst

Reviewed Research Proposals for EDI
EDI-Imapct assessment experience
Research Lead for Athena Swan
Inequalities in Breast Cancer RT
Experience reviewing grant applications

CANCER CARE

ABOUT US

We are an interdisciplinary group of health professionals, with access to a range of imaging hardware (ultrasound, 3D surface imaging, plain X-ray and simulation equipment)

OUR VALUES

- **Collaboration** – We foster a culture of partnership and teamwork across disciplines and communities.
- **Ambition** – We aim to solve real-world challenges faced by the cancer community, with a focus on addressing inequalities and supporting underserved groups.
- **Innovation** – We develop creative, evidence-based solutions to improve cancer care, enhance treatment accuracy, and support healthier lives during and after treatment.
- **Integrity** – We uphold transparency, openness, and ethical standards in all aspects of our research.



VISION

To build an internationally recognised, sustainable cancer research group delivering impactful research that benefits patients and informs policy, practice, and care



MISSION

Our mission is to conduct innovative, collaborative cancer research that tackles real-world challenges, reduces care disparities, and improves the lives of patients, families, and healthcare professionals.

We are committed to advancing equitable, practical solutions through cutting-edge technology, product development, and transparent, ethical research that supports healthier lives and long-term survivorship

Warm up poll

Please use your smart
devices to access this poll



Before we get
started.....

- This is a safe space for learning, not a space for perfection.
- We are all here to learn.
- The ground rules are that we are respectful of other people's experiences and viewpoint.

Sharing experiences

Turning to the person next to you.

Take 5 mins to describe a time where you have seen EEDI (or lack of) in research or academia.

Avoid naming individuals or organisations, the importance is about learning from each others' experiences.

If your experience was positive, what did you learn from this experience that could be shared with others?

If your experience was negative, what did you learn about how to do EEDI better that you could share with others?

Key Concepts- Overview



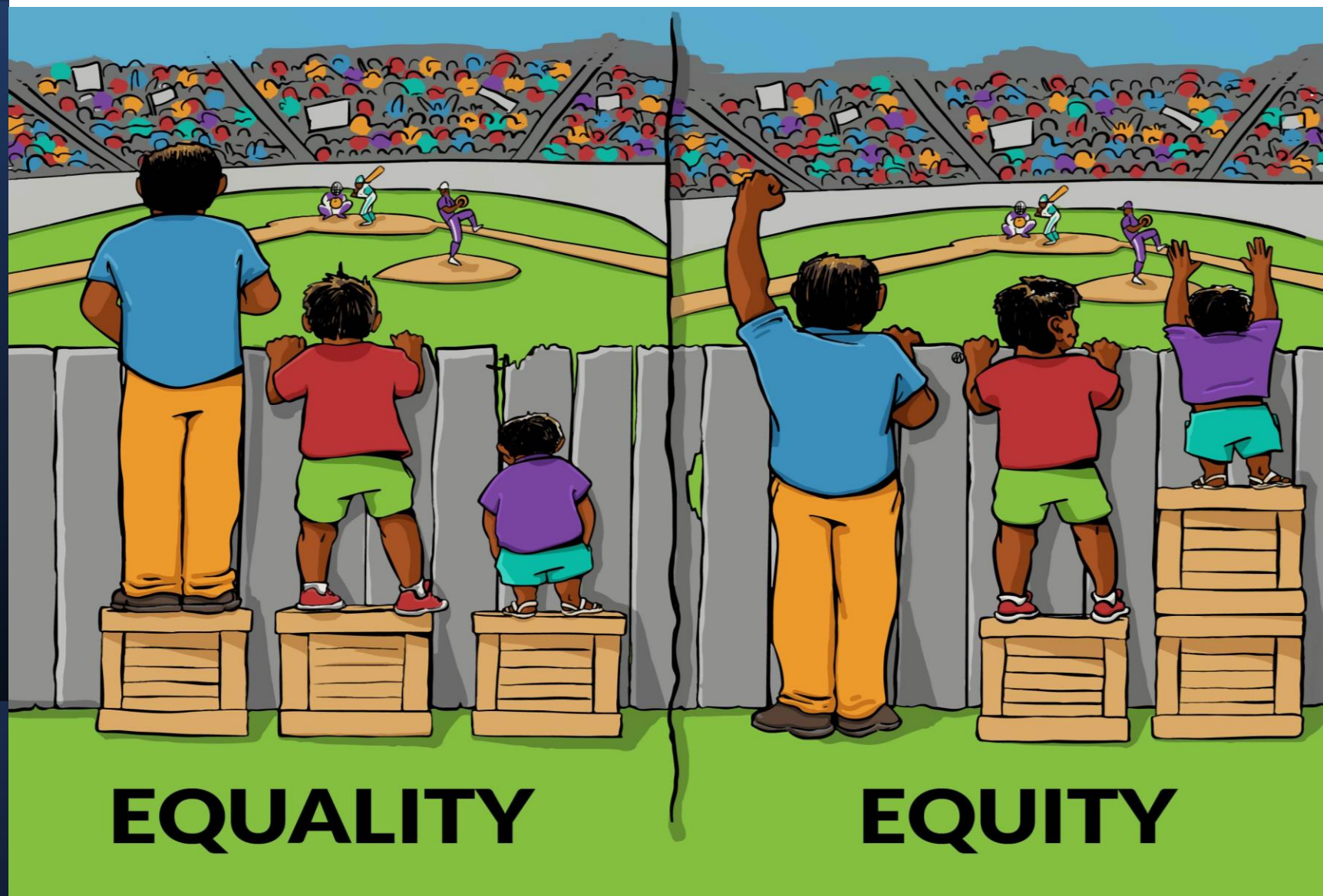
Key Concepts- Overview



3. Everyone has equality of opportunity, irrespective of background or personal characteristics.

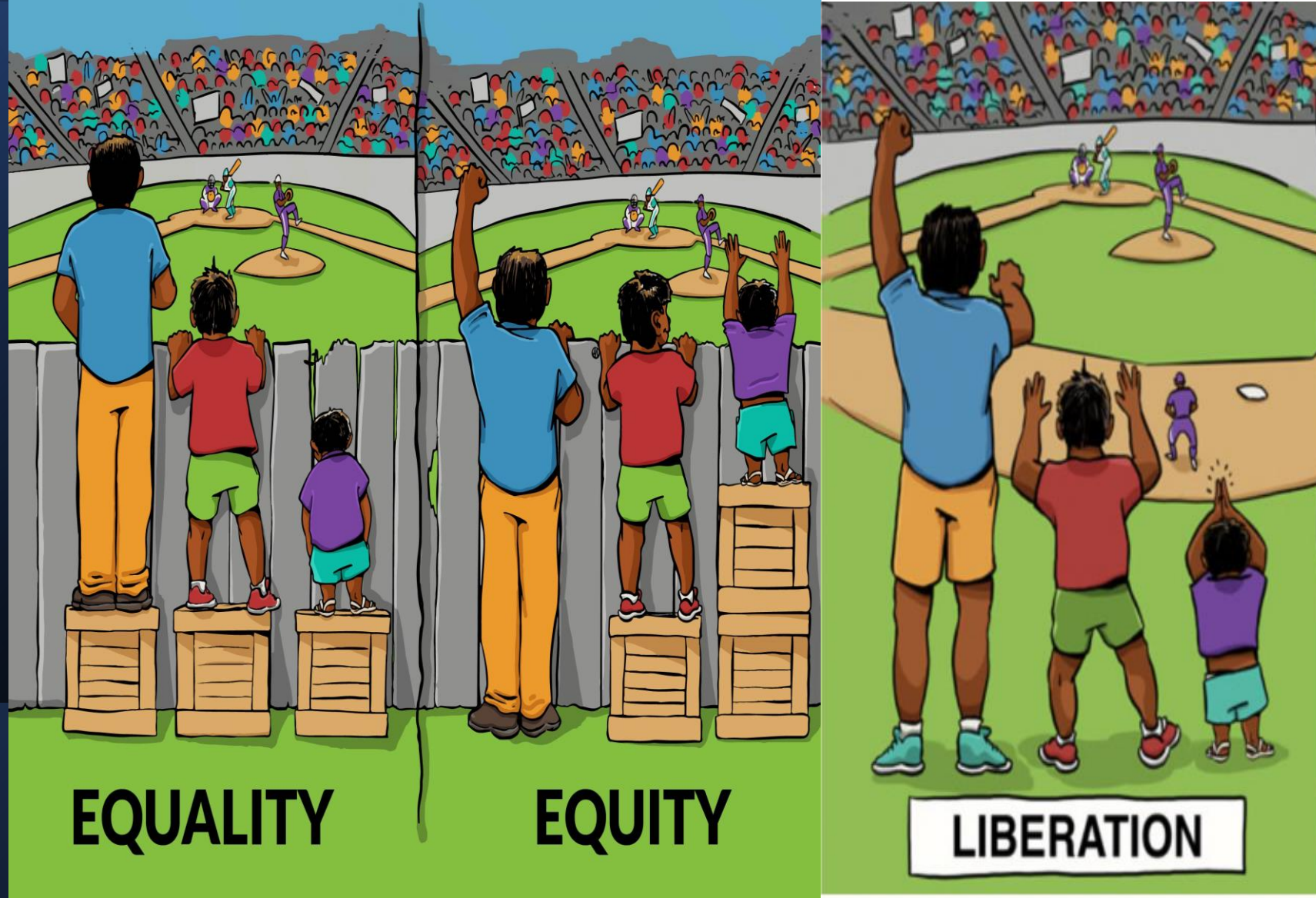
We will work to remove barriers to participation, achievement, development and progression, identifying where they exist and developing interventions to effect change.

Key Concepts- Overview



“Interaction Institute for Social Change | Artist: Angus Maguire.”
interactioninstitute.org and madewithangus.com.

Key Concepts- Overview



“Interaction Institute for Social Change | Artist: Angus Maguire.”
interactioninstitute.org and madewithangus.com.

Key Concepts- Overview



1. Diversity is celebrated: People feel they belong and can be their authentic selves.

We will create an environment that values a diversity of identities and lived experiences.

Key Concepts- Overview



2. People are engaged and take action to make Hallam more inclusive.

We will ensure collective responsibility for advancing EEDI through collaboration, co-creation and co-ownership.

4. Inclusion is embedded in everything we do.

We will raise awareness, encourage inclusive thinking and planning, and put in place structures which will support effective EEDI activities and decision making across the University.

Protected characteristics

- Under employment law across the EU and the UK there are 6 (9) protected characteristics:

Under the UK Equality Act 2010, protected characteristics include the following:

- Age
- Disability
- Gender reassignment
- Marriage and civil partnership
- Pregnancy and maternity
- Race
- Religion or belief
- Sex
- Sexual orientation

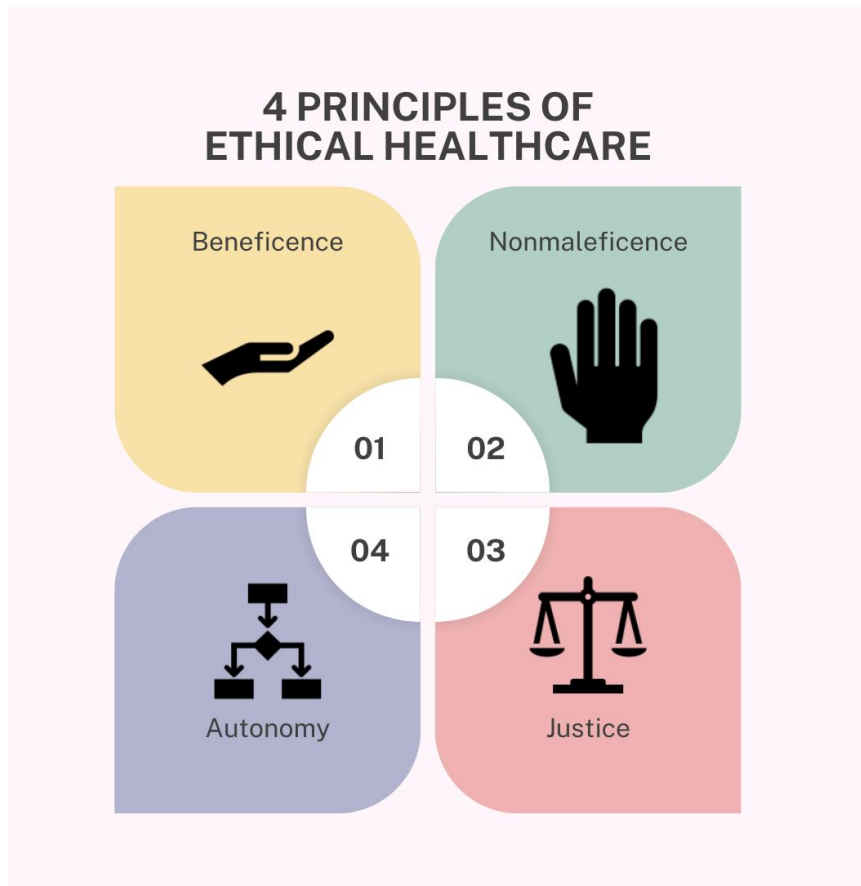
Intersectionality

Intersectionality is a concept for understanding how aspects of a person's identities combine to create different and multiple discrimination and privilege.

Examples of these aspects are gender, race, sexuality, religion, disability or age.

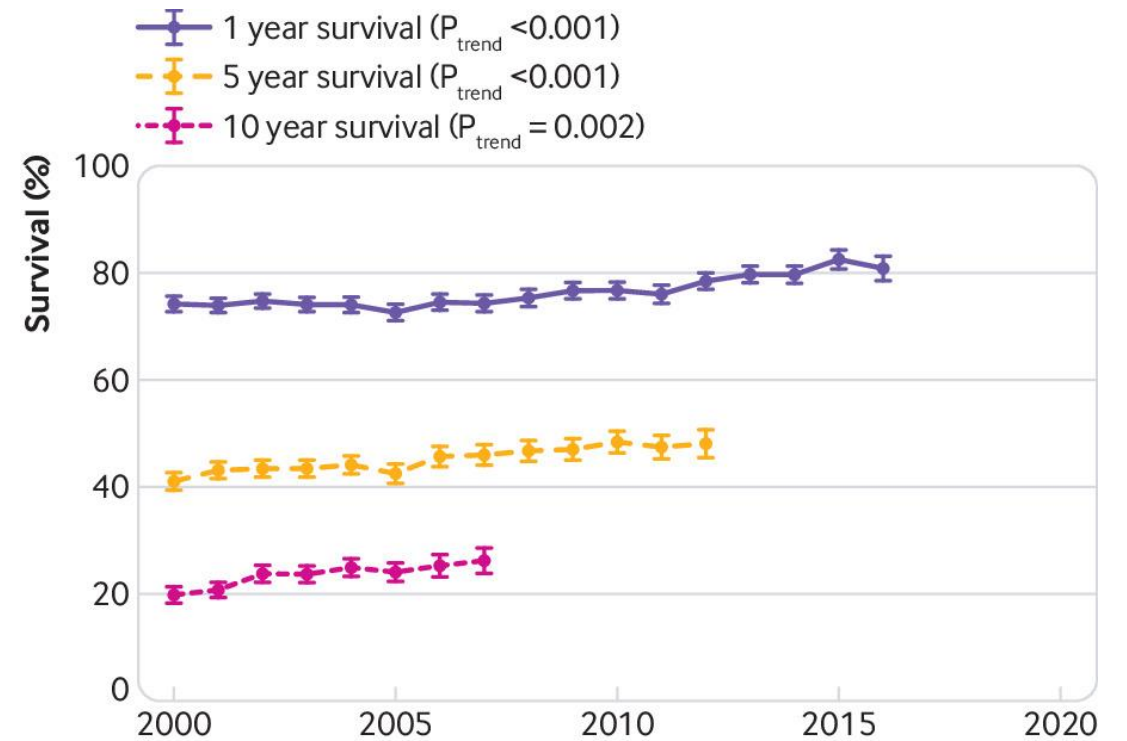
There are many other intersectionality identities in addition to the protected characteristics.

What frameworks can we use in the research we undertake to ensure our work is considerate of EEDI?



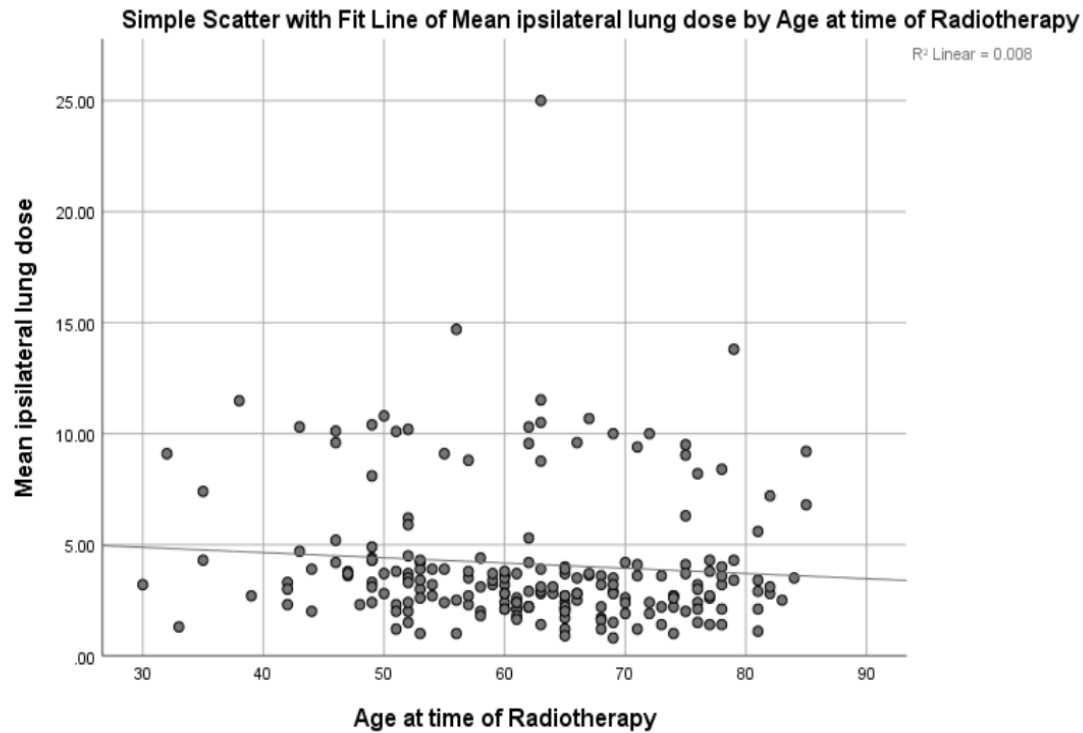
1.
Beneficence-
Do good.





This Photo by Unknown Author is licensed under [CC BY](#)

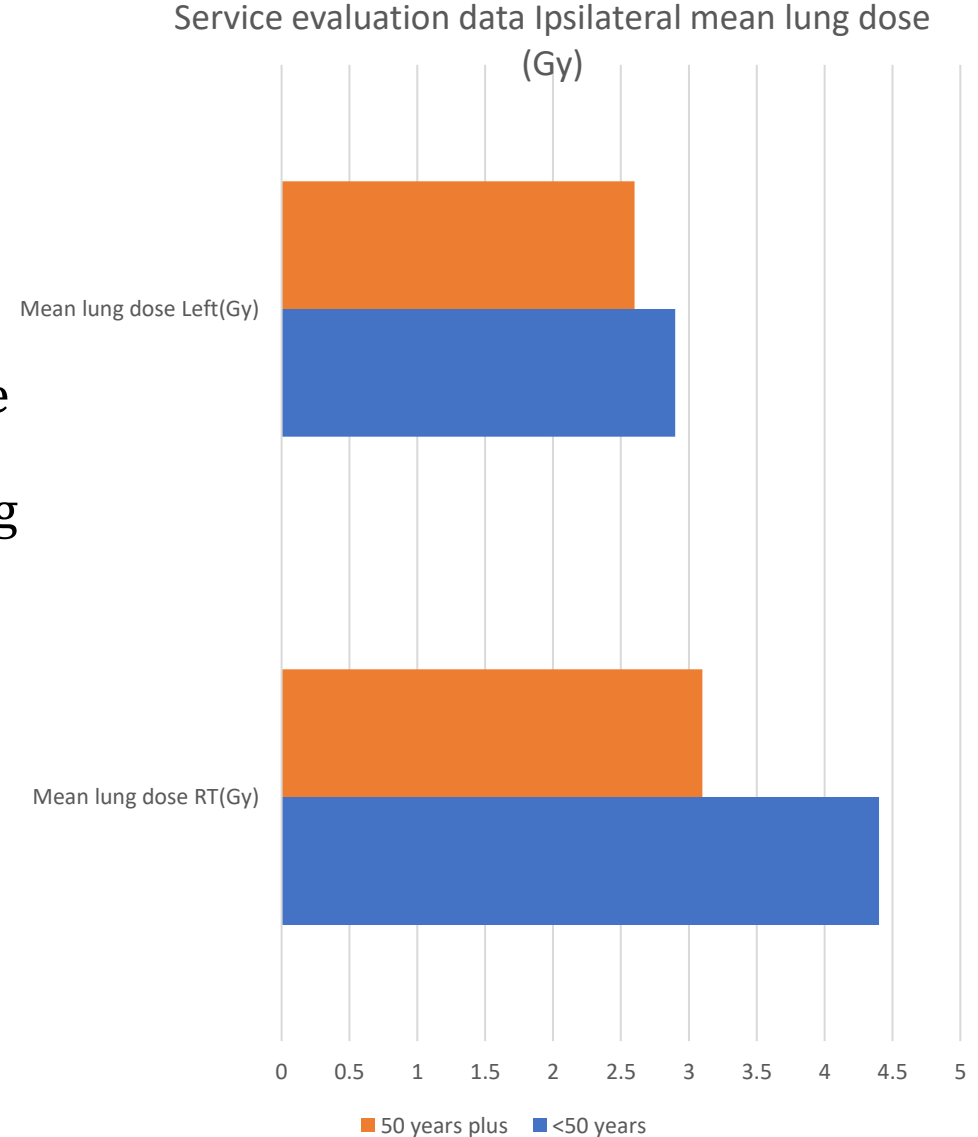
Inequalities in practice



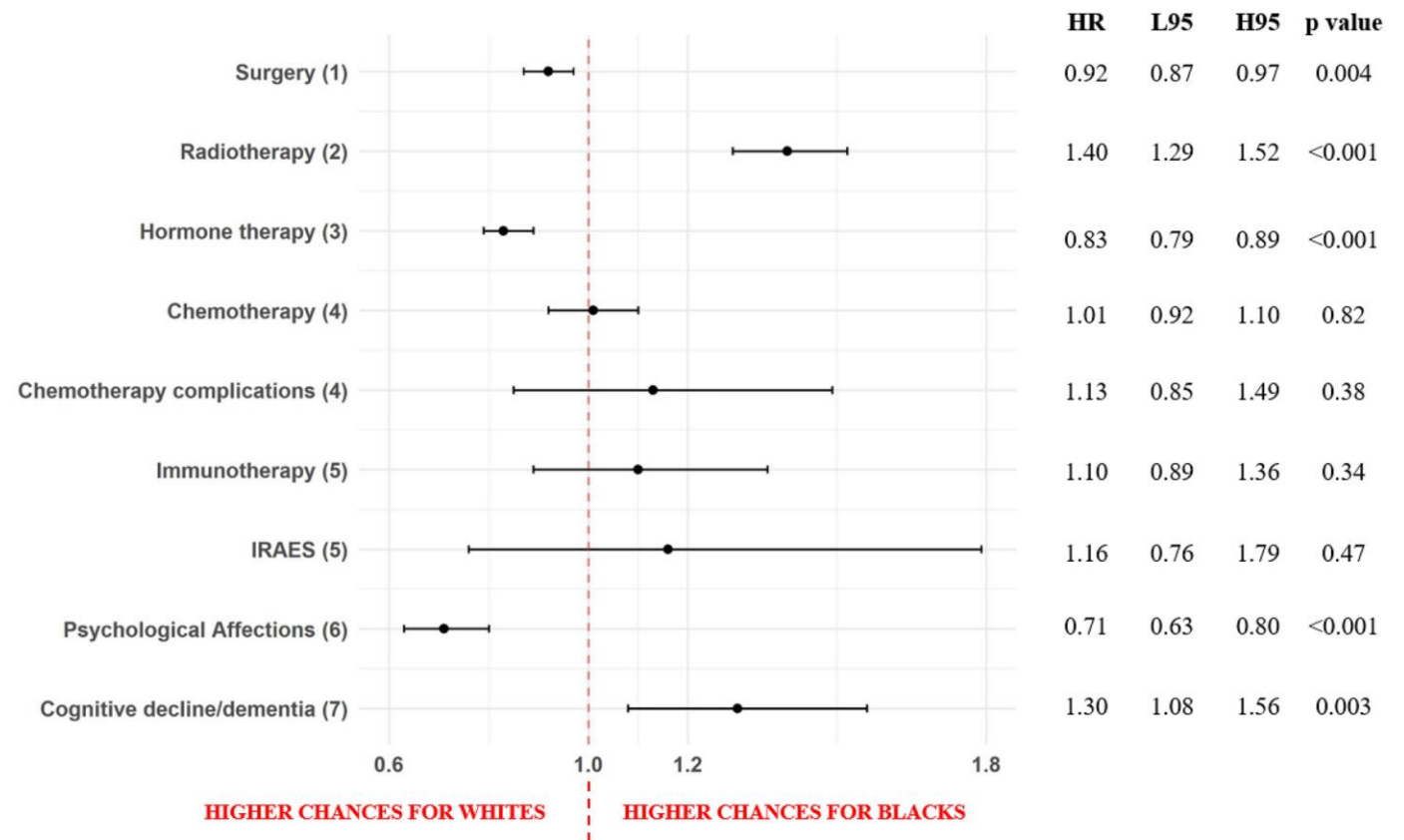
$P < 0.03$
($n=207$)

Is there inequality in outcomes based on age?

Comparing ipsilateral lung doses in the service evaluation across left/right and comparing the mean lung doses for those aged <50 years compared with those aged 50+.



2. Nonmaleficence (do no harm)



(1) Adjusted for age at diagnosis, histology, stage, Charlson, HER2 status, ER status, and PR status.

(2)(4) Adjusted for age at diagnosis, smoking status, histology, stage, Charlson, HER2 status, ER status, and PR status.

(3) Adjusted for histology, stage, Charlson, ER status, and PR status.

(5) Adjusted for age at diagnosis, histology, stage, HER2 status, and ER status.

(6)(7) Adjusted for age at diagnosis, smoking status, histology, stage, Charlson, HER2 status, ER status, PR status, chemotherapy, immunotherapy, surgery, radiotherapy, immunotherapy, and hormone therapy.

Racial disparities in breast cancer treatment patterns and treatment related adverse events N. Stabellini, J. Cullen, L. Cao, J. Shanahan, N. Hamerschlag, K. Waite, et al. Scientific Reports 2023 Vol. 13 Issue 1 Pages 1233 DOI: 10.1038/s41598-023-27578-4

<https://doi.org/10.1038/s41598-023-27578-4>

3. Inclusivity (Justice)



Hypofractionated breast radiotherapy for 1 week versus 3 weeks (FAST-Forward): 5-year efficacy and late normal tissue effects results from a multicentre, non-inferiority, randomised, phase 3 trial
Murray Brunt, Adrian Alhasso, Abdulla et al.
The Lancet, Volume 395, Issue 10237, 1613 - 1626

Table 1 Demographic, clinical, and treatment characteristics at randomisation (n=4096)*				
		40 Gy in 15 fractions (n=1361)	27 Gy in five fractions (n=1367)	26 Gy in five fractions (n=1368)
Age, years				
	Median (IQR)	60 (53–66)	61 (53–67)	61 (52–66)
	Range	29–89	25–90	25–89
	<40	12 (0.9%)	16 (1.2%)	28 (2.0%)
	40–49	186 (13.7%)	173 (12.7%)	189 (13.8%)
	50–59	440 (32.3%)	423 (30.9%)	414 (30.3%)
	60–69	506 (37.2%)	511 (37.4%)	524 (38.3%)
	70–79	175 (12.9%)	197 (14.4%)	172 (12.6%)
	≥80	42 (3.1%)	47 (3.4%)	41 (3.0%)
Sex				
	Female	1355 (99.6%)	1365 (99.9%)	1362 (99.6%)
	Male	6 (0.4%)	2 (0.1%)	4 (0.3%)
	Unknown	0	0	2 (0.1%)

4. Autonomy or agency (choice)



Permanent Indian ink
tattoos for breast cancer
radiotherapy: A United
Kingdom study of the
emotional impact on
patients following
radiotherapy

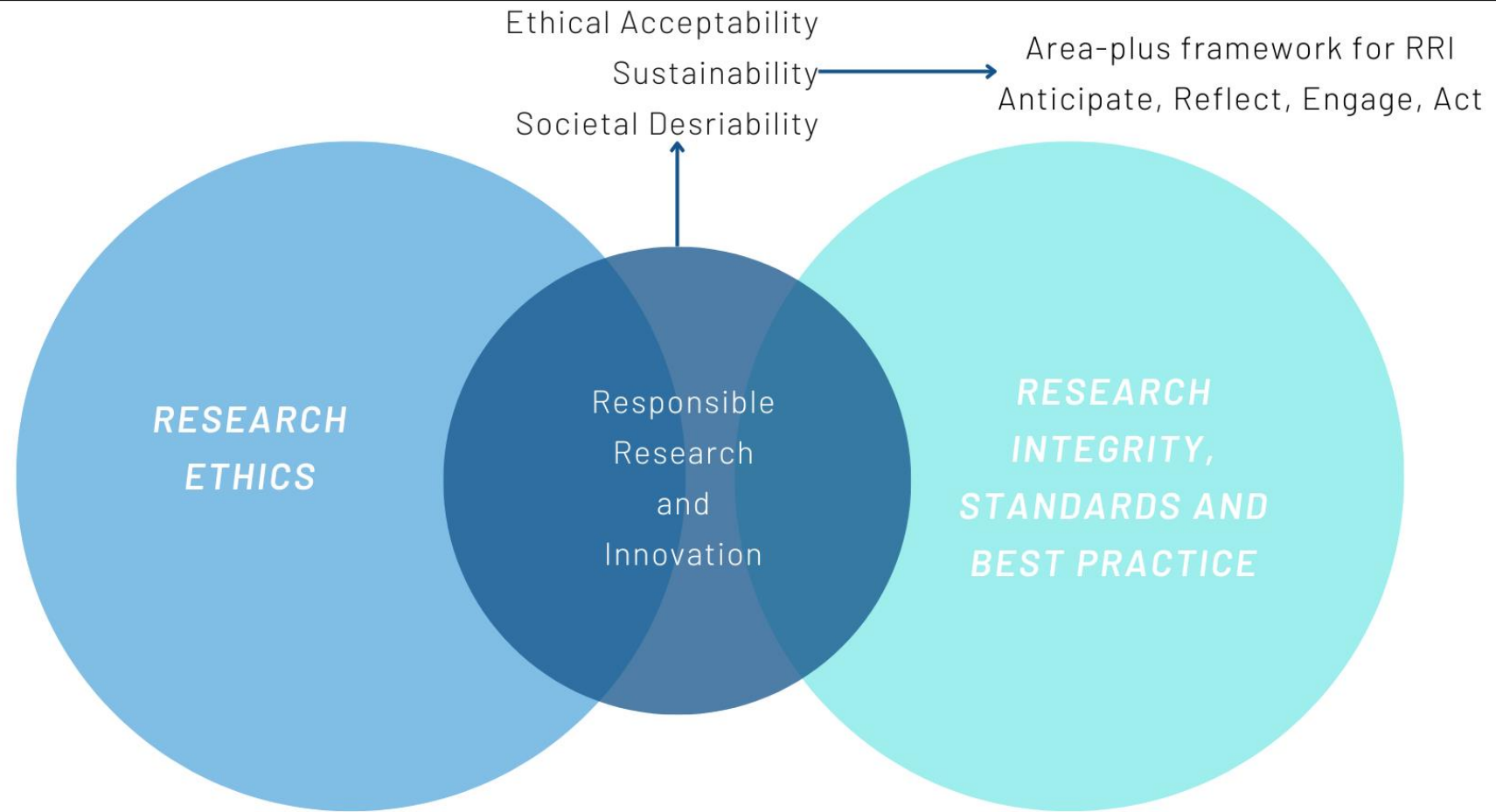
Wickers, S. et al.
Radiography, Volume 30,
Issue 6, 1669 - 1676

- 204 people diagnosed and treated with radiotherapy following a breast cancer diagnosis surveyed about the use of permanent tattoos.
- n = 124 (61%) would have preferred not to have the tattoos but accepted their application because of the perceived need for accuracy during radiotherapy.
- 31% felt they had no choice
- 27% stated it was a constant negative reminder
- 15% commented that it affected what they wore.
- 1% had religious concerns.

Responsible Research and Innovation

‘Responsible Research and Innovation is a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society)’

RRI, ETHICS AND RESEARCH INTEGRITY



Equality Impact Assessments

An Equality Impact Assessment (EIA) is a tool used to analyse policies and practices to ensure they don't disadvantage or discriminate against any group on the basis of protected characteristics, backgrounds, identities. An EIA can also be used to identify ways to promote equality of opportunity.

When should
you consider
doing an EIA?

It should form part of any new funding activity/project and be factored alongside other considerations such as risk, budget, or health and safety.

What to think about when doing an EIA.

As a general rule, the following questions could be considered:

- Will particular groups face a decrease in outcomes (results) as a consequence of this proposed research?
- Will access to services be reduced or denied for any group?
- Do eligibility criteria disadvantage any group?
- Is there likely to be a lower participation rate of one group compared to others?
- Do certain groups have lower success rates in particular processes/set-ups/positioning?
- What is the balance of characteristics in my project team?
- How will I ensure I am able to recruit participants from marginalised or under-represented groups?

Let's review a
Radiotherapy
Project for
EEDI



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Empowered

and breathe

www.respire.org.uk



RESPIRE TO SUPPORT VDIBH

01

CO-DESIGNED WITH STAKEHOLDERS

Using Co-design methodology



02

WHAT TO EXPECT WHEN ATTENDING FOR RADIOTHERAPY

A series of videos on what to expect when attending radiotherapy for breast cancer



03

INCLUDES RELAXATION PODCASTS

Patient indicated



04

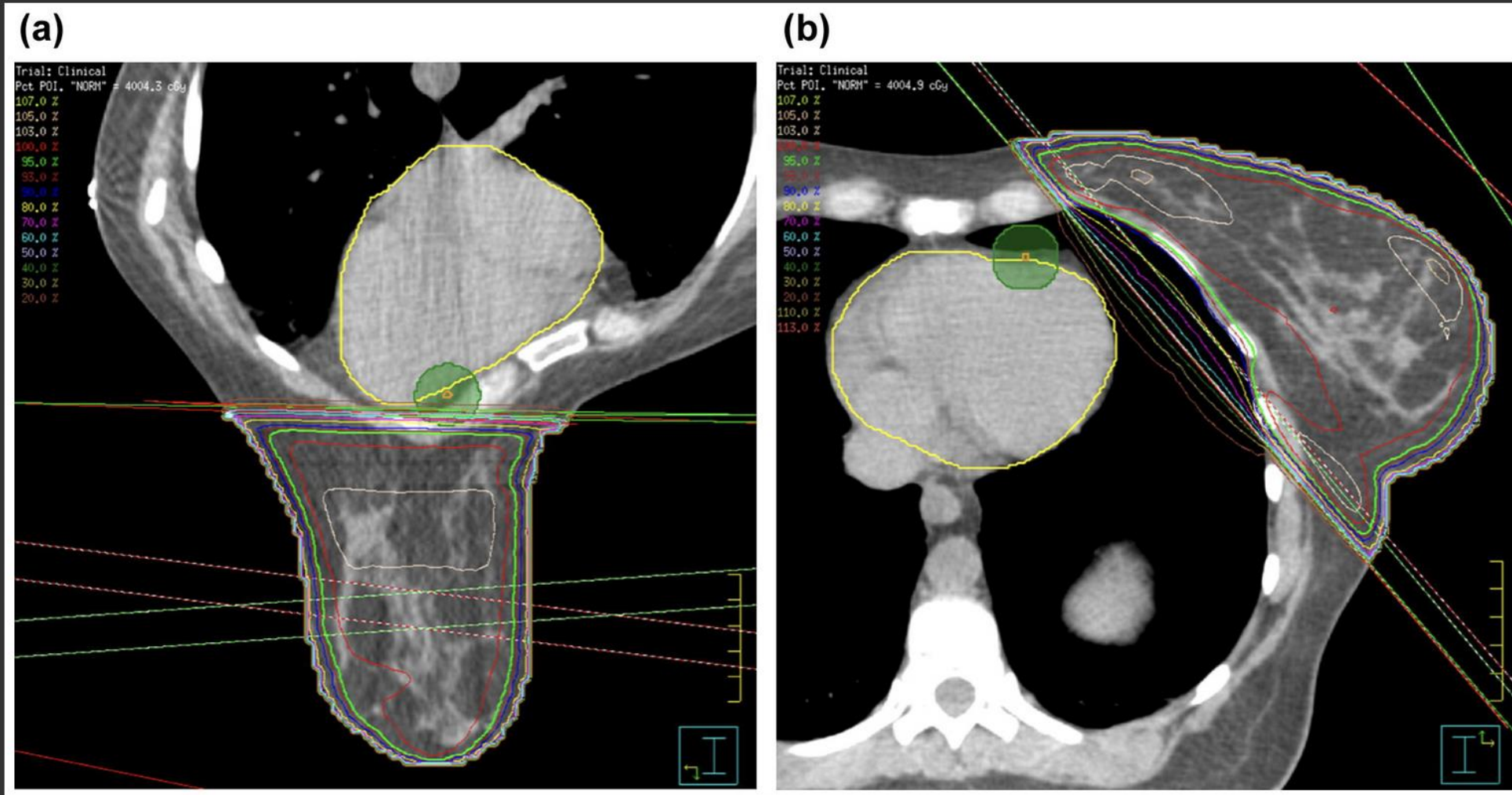
VDIBH VIDEO TUTORIALS

Physiotherapist led tutorials on how to practice and build up to breath hold safely at home.



**Sheffield
Hallam
University**
Knowledge Applied

Centre for
Applied Health and
Social Care Research



Bartlett FR, Colgan RM, Donovan EM, McNair HA, Carr K, Evans PM, et al. The UK HeartSpare Study (Stage IB): randomised comparison of a voluntary breath-hold technique and prone radiotherapy after breast conserving surgery. *Radiother Oncol.* 2015;114(1):66-72.

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Empowered

and breathe

www.respire.org.uk



RESPIRE TO SUPPORT VDIBH

Improving patient preparation and comfort in voluntary DIBH; Single-centre quality improvement evaluation

A. Thornley, K. Taylor and S. Goldsworthy

Radiography 2025 Vol. 31 Issue 6

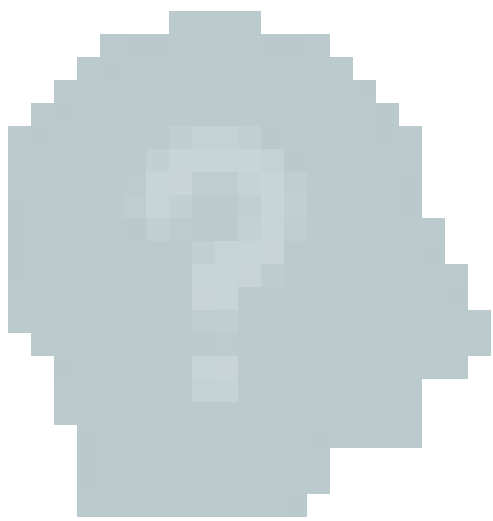
DOI: 10.1016/j.radi.2025.103162

<https://doi.org/10.1016/j.radi.2025.103162>

- Mean increase in lung volume 32%.
- BH consistency greater for those that had used the Respire web coaching.

**Sheffield
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Applied Health and
Social Care Research



PROBLEM

Over 33,000 episodes of radiotherapy for breast cancer were delivered in 2022-2023⁽¹⁾(UK).

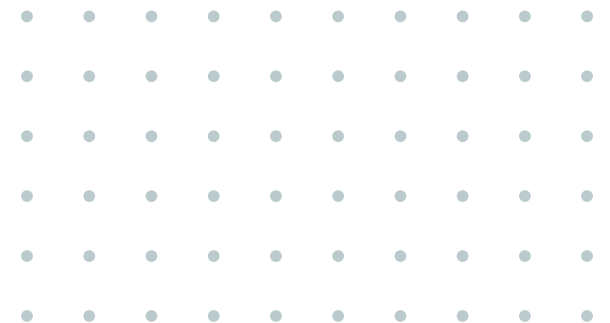
External beam radiotherapy to the breast or chest wall may result in some level of Radiation Induced Skin Reaction (RISR) or breast/trunk lymphoedema(BTL)⁽²⁾.

Psychological stress may increase the RISR experienced⁽³⁾ and good patient preparation resources may reduce patient anxiety or stress⁽⁴⁾.

Patients report being unprepared for the development of breast/trunk lymphoedema and report difficulties in having their concerns acknowledged by healthcare practitioners^(5, 6). Delay in obtaining a lymphoedema diagnosis leads to anxiety and worsening of symptoms⁽⁶⁾.

SOLUTION

Free web resources designed with the breast cancer community and Therapeutic Radiographers





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Method

Co-design methodology

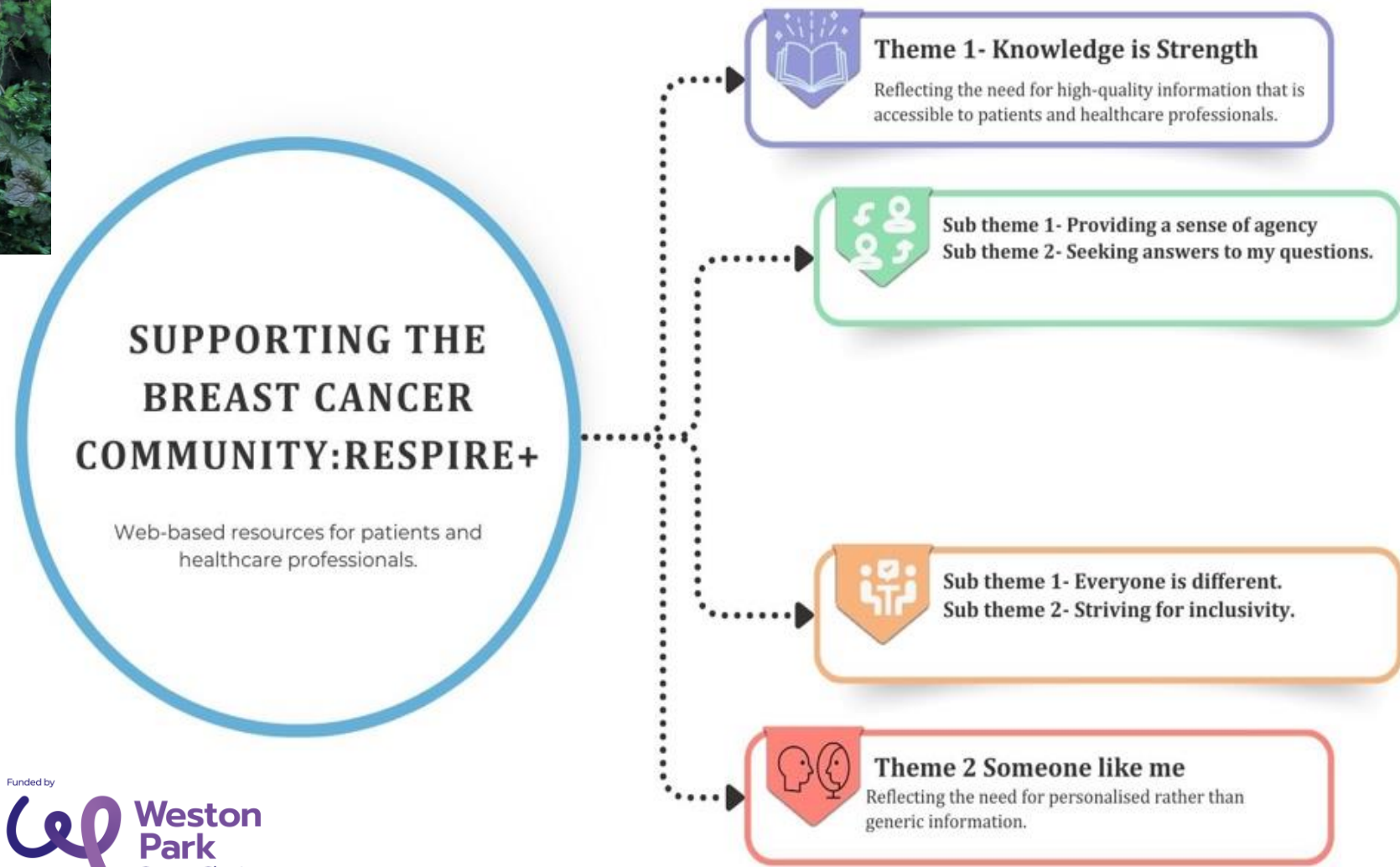
- Patient advocates that have experienced breast/trunk lymphoedema following radiotherapy and patients that had experienced a RISR (n=11).
- Therapeutic radiographers (n=15).

To understand information and care needs and to design patient-centred web resources.

A co-design methodology was also used to develop a patient-led self monitoring tool for radiation induced skin reactions and breast/trunk lymphoedema (SeLF tool , Size, Look, Feel).



Results



RESPIRE+ SKIN CARE AND BREAST/TRUNK LYMPHOEDEMA

What can I do myself
Self-monitoring tools to empower.

Someone like you-Talking
Heads

Patient advocates give their experiences

FAQs
All the questions patients had in their stories



Signs and Symptoms

Evidence-based information on
what to look for.



How do I get help?

Based on patient experiences of
struggles and barriers to getting
care when they need it.



Myth-busting

Animations to give clarity about
any myths they may have come
across about skin care products
or care practices that are not
evidence-based.



Further Resources

For patients and staff links to
trusted websites with more
detailed information if they want
to dive deeper.

Myth Busting

There are common misconceptions about lymphoedema and cellulitis.
This video will help clear up some myths about travelling, exercise, body weight etc.



How do I get help?



Short bite sized animations (<3 mins)

The Support 4 All Booklet

This booklet will help you monitor changes in your breast or chest as you go through radiotherapy.

Please bring this booklet with you to each radiotherapy appointment.

Patient name

Useful contact numbers

How would you describe your normal skin? (colour, texture)

Please indicate if you have an existing skin condition that your healthcare team should be aware of.

V 2.8
02/25

	RTOG 0	RTOG 1	RTOG 2a	RTOG 2b	RTOG 3
Skin Colour 	No change compared to the non treated side, or no change to baseline colour before treatment for those having treatment to both sides of the chest. Date: / /	If your skin colour is pale you may experience pink or reddening of the skin. If your skin colour is warm brown or deep brown you may not notice a change in colour. Date: / /	If your skin colour is pale you may experience pink or reddening of the skin. If your skin colour is warm brown or deep brown you may notice a change in colour or deepening of pigmentation. Date: / /	If your skin colour is pale you may experience pink or reddening of the skin. If your skin colour is warm brown or deep brown you may notice a change in colour or deepening of pigmentation. Date: / /	If your skin colour is pale you may experience pink or reddening of the skin. If your skin colour is warm brown or deep brown you may notice a change in colour or a deepening of pigmentation. Date: / /
Skin Appearance 	No change compared to the non treated side or baseline appearance before treatment for those having treatment to both sides of the chest. Date: / /	No change compared to the non treated side, or baseline appearance before treatment for those having treatment to both sides of the chest. Date: / /	Skin may be dry and flaky in the area treated. Date: / /	Skin may have patches where the skin is wound like or raw or weeping. Date: / /	In areas other than the armpit or under the breast (if you have a breast on the treated side) There are large areas where the skin is wound like, or weeping. Date: / /
Heat 	No change compared to the non treated side, or no change in heat compared with baseline levels of warmth for those having treatment to both sides of the chest. Date: / /	There is a feeling of warmth on the treated skin. Date: / /	There is a feeling of warmth on the treated skin. Date: / /	There is a feeling of warmth on the treated skin. Date: / /	There is a feeling of warmth on the treated skin. Date: / /
Armpit 	No change compared to the non treated side, or no change compared with baseline armpit area for those having treatment to both sides. Date: / /	Hair loss in the armpit of the treated side. Date: / /	Hair loss in the armpit of the treated side. Date: / /	Hair loss in the armpit of the treated side. Date: / /	Hair loss in the armpit of the treated side. Date: / /
Sweating 	No change compared to the non treated side, or no change compared with baseline before treatment, for those receiving treatment to both sides. Date: / /	Reduced sweating in the area treated. Date: / /	Reduced sweating in the area treated. Date: / /	Reduced sweating in the area treated. Date: / /	Reduced sweating in the area treated. Date: / /
Pain/Itch 	No change compared to the non treated side, or no change compared with baseline before treatment, for those receiving treatment to both sides. Date: / /	You may experience some pain or itching on the treated area. Date: / /	You may experience some pain or itching on the treated area. Date: / /	You may experience some pain or burning sensation and itching on the treated area. Date: / /	You may experience some pain or burning sensation and itching on the treated area. Date: / /
Breast or chest 	No change compared to the non treated side, or no change compared with baseline for those receiving treatment to both sides of the chest. Date: / /	You may experience tightness or heaviness in the treated area. Date: / /	You may experience tightness or heaviness in the treated area. Date: / /	You may experience tightness or heaviness in the treated area. Date: / /	You may experience tightness or heaviness in the treated area, there maybe an orange peel effect or dimpling of the skin. Date: / /

Identifying other changes in the breast or trunk (continued)

Further action will depend on the extent of the breast or trunk changes and may involve referral to a lymphoedema specialist.

Rarely a patient may develop cellulitis, an infection of the skin. The main symptoms of cellulitis are a **sudden** change in skin colour, (the area may look red on pale skin, redness maybe less obvious on warm brown or deep brown skin) becomes hot and painful. Where a patient has developed breast or trunk lymphoedema they may become more vulnerable to cellulitis and for these rare cases it may be necessary for the health care team to prescribe a course of anti-biotic drugs.

The course of action required (if any action is needed) will depend on the extent of the swelling and other breast or trunk changes and the assessment of these changes by the health care team.

How to use the SeLF - breast or trunk lymphoedema grading system

Use the SeLF breast/Trunk lymphoedema grading system at the first radiotherapy appointment (this may be when you attend to have a CT scan to plan for your radiotherapy), and then once a week for each week that you have treatment and then after radiotherapy as advised by your health care team.

You may find it easier to check your breast/trunk at the same time of day and the same day of each week as part of your routine. You may also find it easier to compare your treated side with the untreated side, looking at your whole trunk area in a mirror, (without any clothes on) to assess colour and skin changes.

A member of your health care team will talk through the SeLF tool and how to use it. Please read each of the boxes in row one and for week zero tick the boxes where any descriptions match changes in your breast or trunk size, how it looks, and how it feels since you had your surgery.

Page 8

Size

Changes to the size of your breast (if you have one) or changes to the size or shape of your chest or trunk area.

Compare the affected side to your non-affected side, has it changed in size?

1. No change in affected breast /chest or trunk since surgery.

1. If you have a breast on the treated side-the breast has increased in size, but not enough to require going up a bra cup size. If you do not have a breast on the treated side - the chest area is bigger than the non treated side but has not increased enough to require that I go up a clothes size for tops.

1. If you have a breast on the treated side- The breast has increased in size and I now need to wear at least one bra cup size bigger than I normally wear.

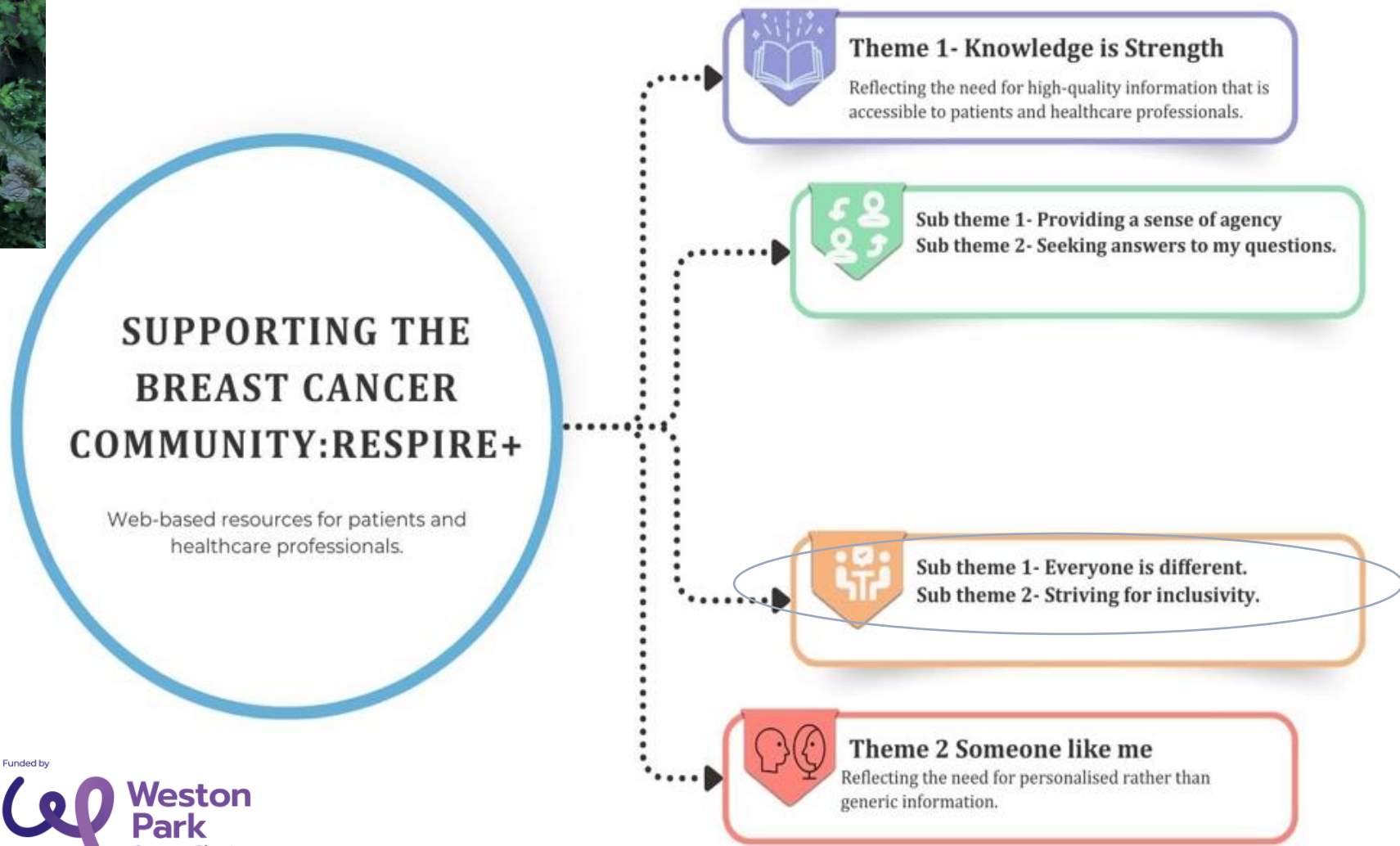
2. If you do not have a breast on the treated side-the chest area has increased compared to the non-treated side and I need to wear clothes at least one size larger than I would normally wear.

Example	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At week 0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At week 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At week 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At week 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At week 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At week 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At week 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
At week 7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Page 9



Results



The background is a solid dark blue. A large, lighter blue circle is positioned on the right side, partially cut off by the edge. A vertical line of a slightly different shade of blue runs through the center of the image.

Using patient stories

Someone Like You

Patient stories to provide support, insights, hope, and a reminder that patients are not alone.



Waheeda



James



Bev



Victoria



Kirsten



Negeba



Natasha



Informed, Prepared
Empowered

and breathe

**WHERE DID WE FALL
SHORT?
WHERE CAN WE
IMPROVE**



Equity in access

Currently not designed for individuals with intellectual disabilities.

01



Video accessibility

Don't currently have captions- written text to be added.

02



Translations limited to 4 languages

Based on cost, with more funding plan is to increase translations available.

03

www

Equity in access

Digital access requires access to internet, smartphone or PC.

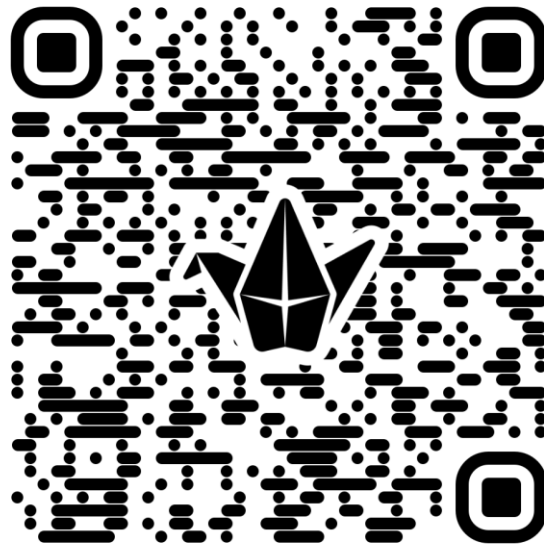
04

Over to you.....

Individual reflection Padlet:

- Where might there be biases in your proposed sample, recruitment methods, data collection or literature base?
- Are any voices or sub-groups potentially going to be missing?
- What can you build into your design/consider to improve diversity and inclusivity?

Optional: peer-pair share, this is a starting point; ongoing reflection is necessary.



pass code UPLIFT-1

EEDI Action Planning

Question 1: Where might there be biases

List potential areas where bias may present in your proposed sample, recruitment methods, data collection or literature base?



0

+ Add comment

Question 2: Are any voices or sub-groups potentially going to be missed?

Here list any sub-groups you think you may need to make sure are adequately represented, or protected characteristics that you need to consider.



0

+ Add comment

Question 3: What can you build in to the design of your study to improve diversity/inclusivity.

Here list some research design practices that you think could help you improve diversity and inclusivity.



0

+ Add comment

Add section

In summary

- Why is EEDI important in your research?
- What tools or frameworks could you use to help you consider EEDI principles and issues?
- What can you do to enhance EEDI across all aspects of your proposed project, including dissemination of the results?

The background of the slide is a vibrant teal color, densely populated with numerous speech bubbles of various colors including red, yellow, pink, grey, and olive green. Each speech bubble contains a dark blue question mark, creating a pattern that suggests inquiry and discussion.

Questions or
discussion