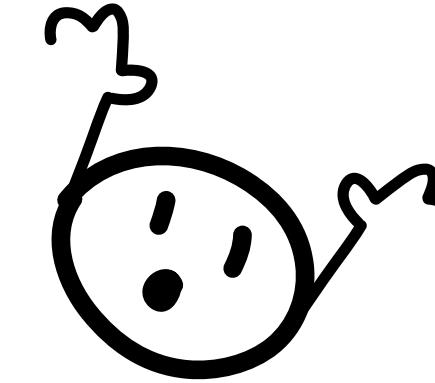


From Isolation to Awareness

Designing Clarity for Patients Undergoing Nuclear Medicine Therapy

Group work: Sairaj, Tejas , Hemant

“I’m going to miss my own birthday dinner”



He was late again, this time to his own birthday dinner. When he finally called, he sounded exhausted.

“I’ve been explaining isotope precautions to the same patient for an hour,” he said. “They keep asking can I hug my daughter? when can I cook again?”

It stuck with me. It wasn’t just medical fatigue, it was emotional confusion on both sides.

Later that night, I thought of how my sister-in-law used a pregnancy tracker app, simple visuals, gentle reminders, a sense of control.

“Why couldn’t something like that exist for patients after radionuclide therapy?”

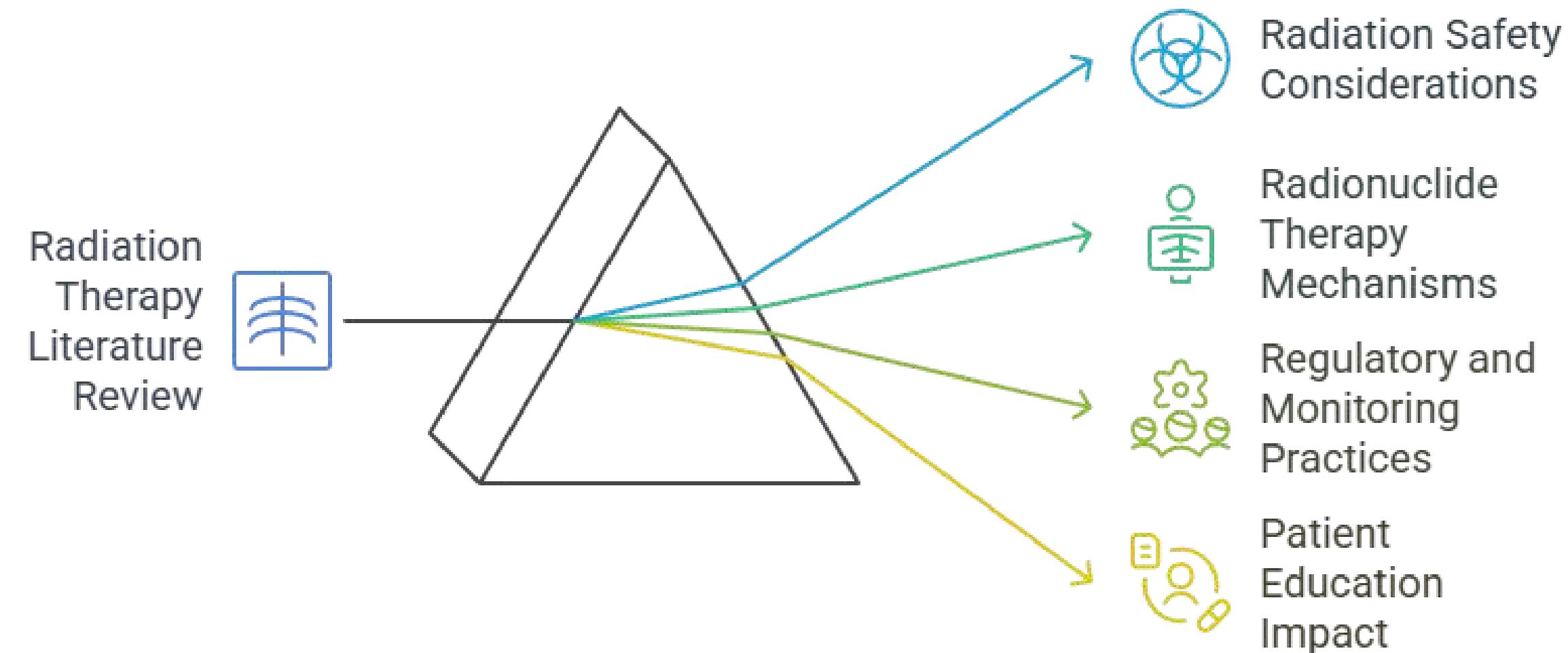
That’s how the idea for the Patient Awareness Tracker began a small thought from a tired friend’s call that grew into a collaboration between design and medicine.

229Th

Research Phase 1

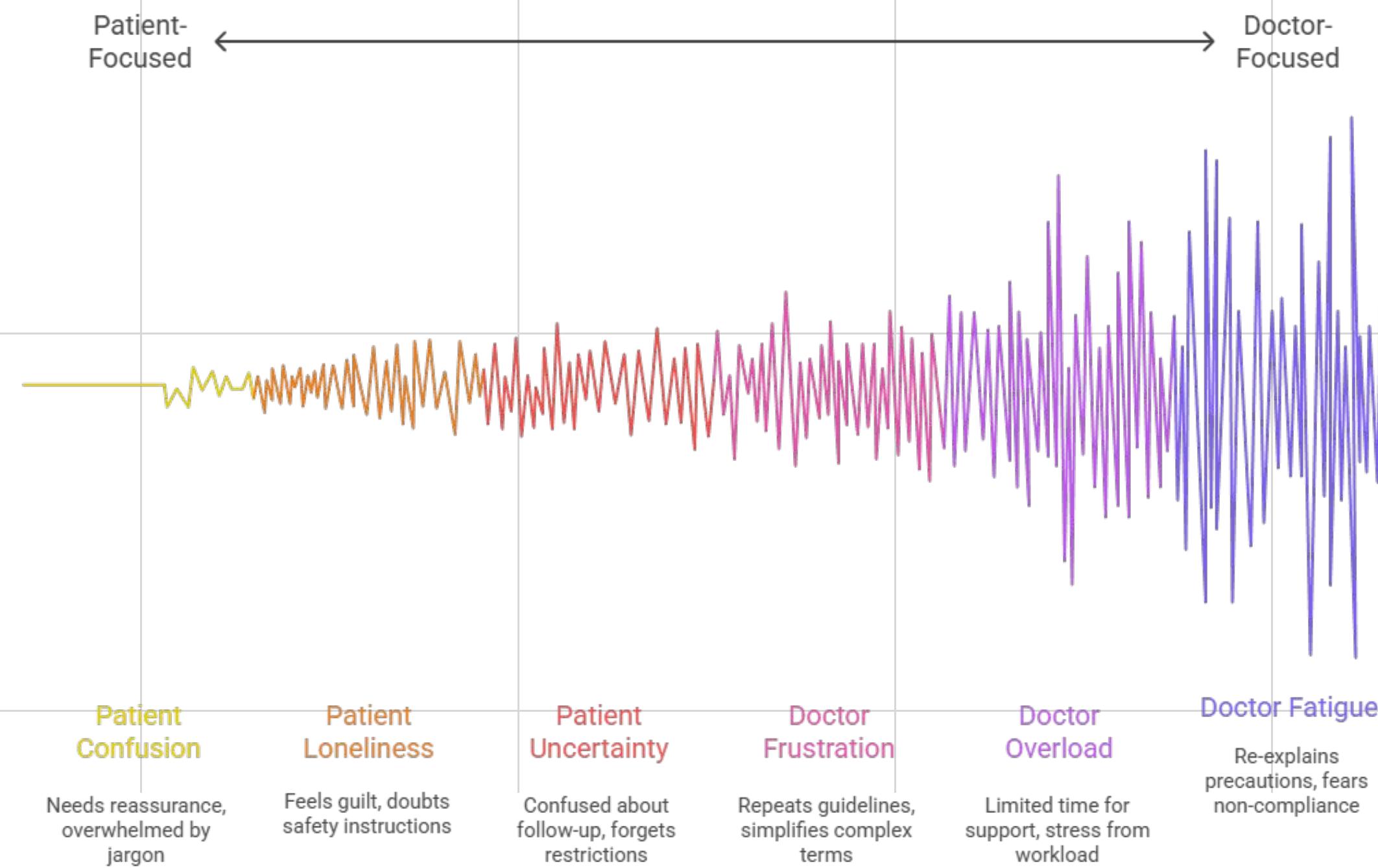
We began by reviewing research papers to understand the **basics of different isotopes their decay times, effects, and safety measures**. This helped us build a foundation for understanding the overall treatment process.

Insights from the reviewed papers highlighted that post-therapy care **depends on the isotope type**, often requiring only **simple hygiene precautions** rather than strict isolation. The IAEA explains that **radionuclide therapy targets tumors precisely, with radiation effects being temporary** and localized. Guidelines from ScienceDirect stress the importance of clear, tailored instructions for each isotope, while PubMed findings show that **better patient education reduces anxiety and improves cooperation**.

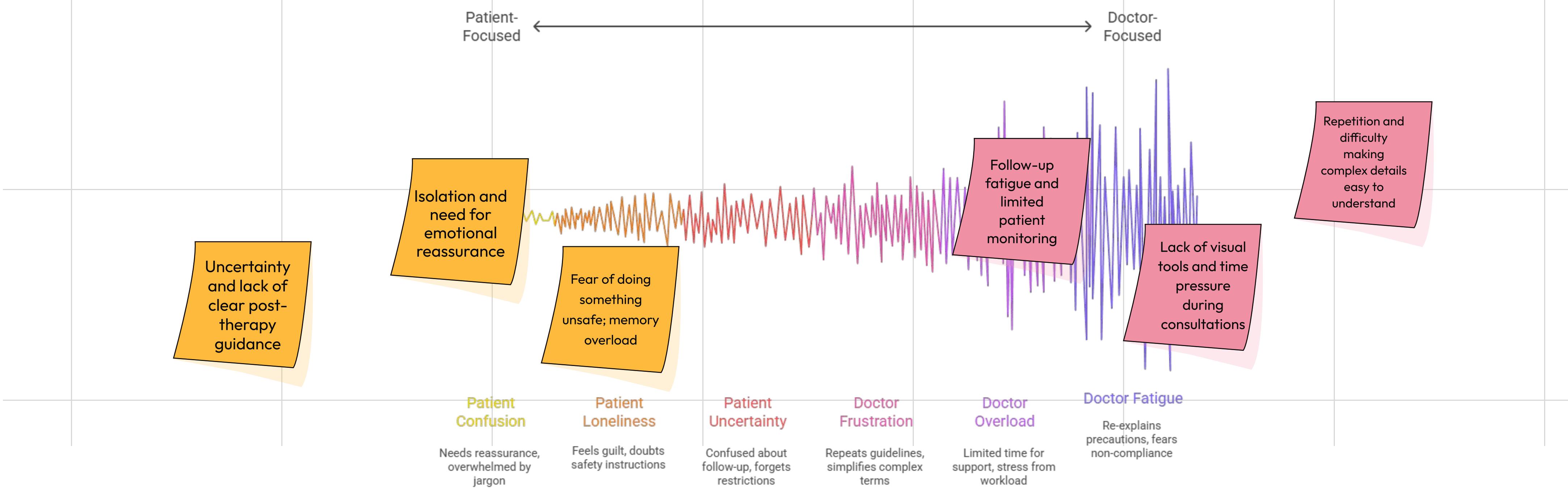


From our research, we found that both patients and doctors face **overlapping challenges**.

Patients struggle with confusion, anxiety, and isolation during therapy, often unsure about safety and recovery. **Doctors, meanwhile, manage heavy workloads, repeated explanations, and emotional fatigue.**



To validate our findings, we spoke with my friend and two of his patients. His experience helped us shape the right questions, and combining these interviews with earlier insights gave us a clearer view of **how communication gaps and emotional strain shape their experience**



Further we started adding **another layer of evidence mapping** on top of our findings and to validate the claims from the interview

Not as simple as "fear of the unknown": A qualitative study exploring anxiety in the radiotherapy department

Eliza Gimson , Maria Greca Dottori, Gemma Clunie, Caroline Yan Zheng, Theresa Wiseman, Elizabeth Joyce, Alison McGregor, Helen McNair

First published: 21 February 2022 | <https://doi.org/10.1111/ecc.13564> | Citations: 8

Funding information: NIHR Imperial Biomedical Research Centre; National Institute for Health Research (NIHR) Imperial Biomedical Research Centre and the NIHR Clinical Doctoral Research Fellowship Programme CDRF-2017-03-028/Integrated Clinical Academic Programme; National Institute for Health Research and Health Education England, Grant/Award Number: ICA-SCL-2018-04-ST2-002; NIHR Biomedical Research Centre at The Royal Marsden and The Institute of Cancer Research; CRUK Convergence Science Centre at The Institute of Cancer Research, London, and Imperial College London, Grant/Award Number: A26234

Oncological Patient Anxiety in Imaging Studies: the PET/CT Example

Carla Abreu ^{1,✉}, Ana Grilo ², Filipa Lucena ³, Elisabete Carolino ⁴

► Author information ► Article notes ► Copyright and License information

PMCID: PMC5670194 PMID: [27370917](https://pubmed.ncbi.nlm.nih.gov/27370917/)

Abstract

The purpose of this study was to investigate the subjective perception of anxiety pre-post-procedure, and explore the relationship between demographic, clinical variables and cancer patients' anxiety during a positron emission tomography/computed tomography (PET/CT) scan. Two hundred and thirty-two oncological outpatients, with clinical indications for performing an ¹⁸F-2-fluoro-2-deoxy-D-glucose (¹⁸F-FDG) PET/CT scan and after nuclear medicine (NM) department, participated in the study. Patients' anxiety and

Review > *J Nucl Med Technol.* 2006 Sep;34(3):143-50; quiz 151-2.

Patient misconceptions and ethical challenges in radioactive iodine scanning and therapy

Being away from home for cancer treatment: a qualitative study of patient experience and supportive care needs during radiation therapy

Vanessa Knibbs ^{1,✉}, Stephen Manley ¹

► Author information ► Article notes ► Copyright and License information

PMCID: PMC9442298 PMID: [35373930](https://pubmed.ncbi.nlm.nih.gov/35373930/)

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Research Article |  Published Online: 5 April 2011

Radiation Safety in the Treatment of Patients with Thyroid Diseases by Radioiodine ¹³¹I: Practice Recommendations of the American Thyroid Association

Authors: The American Thyroid Association Taskforce on Radioiodine Safety, James C. Sisson, John Freitas, Iain Ross McDougall, Lawrence T. Dauer, James R. Hurley, James D. Brierley, Charlotte H. Edinboro, ... SHOW ALL..., and Carol Greenlee | AUTHORS INFO & AFFILIATIONS

Publication: Thyroid • <https://doi.org/10.1089/thy.2010.0403>

75,139 / 182

Permissions & Citations

PDF/EPUB

Needs reassurance, overwhelmed by jargon

Feels guilt, doubts safety instructions

Confused about follow-up, forgets restrictions

Repeats guidelines, simplifies complex terms

Limited time support, stress from workload

RADIATION ONCOLOGY PHYSICS |  Open Access | 

Application of repeat image analysis to radiation therapy imaging modalities as a quality improvement tool for image guided radiotherapy

Daniella Chee, Lesley Buckley 

First published: 04 May 2023 | <https://doi.org/10.1002/acm2.14019> | Citations: 1

Impact of Patient-Centered Care on the Patient Experience in Nuclear Medicine

February 2020 · *Current Problems in Diagnostic Radiology*, 49(5)

DOI: [10.1067/j.cpradiol.2020.02.003](https://doi.org/10.1067/j.cpradiol.2020.02.003)

Authors:

 Jesse Berman

 Renee M. Moadel

 Eman Yassen

The safety and acceptability of using telehealth for follow-up of patients following cancer surgery: A systematic review

Karen Xiao ^a, Jonathan C Yeung ^{a,b}, Jarlath C Bolger ^{a,c,*}

► Author information ► Article notes ► Copyright and License information

PMCID: PMC9458545 PMID: [36114050](https://pubmed.ncbi.nlm.nih.gov/36114050/)

As we layered insights from interviews, evidence, and pain points, clear patterns emerged.

1

"Too much told, too little remembered."

2

"Repetition replaces empathy."

4

"Therapy ends, anxiety doesn't."

5

"Physical isolation becomes emotional isolation."

3

"Unseen progress fuels unseen anxiety."

6

"Precision versus comprehension."

Not as simple as it sounds. "Exploring anxiety in patients with thyroid cancer after treatment with radioactive iodine"

Eliza Gimson  Maia J. H. L. van der Steene  Elizabeth Joyce, Alison M. D. Smith 

First published: 21 February 2018

Funding information: This work was funded by the National Institute for Health Research (NIHR) Imperial Biomedical Research Programme CDRF-2014-09-001. The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care. This article has been peer-reviewed.

Biomedical Research

Convergence Science

Grant/Award Number:

Oncological Patient Anxiety in Imaging Studies: the PET/CT Example

Carla Abreu  Ana Grilo  Filipa Lucena  Elisabete Carolino  4

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Patient misconceptions about radioactive iodine

Vanessa Knibbs  , Stephen Manley 

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Volume 21, Number 1, January 2011, pp 139 - 182

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Needs reassurance, overwhelmed by jargon

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Repeats g simplifies ter

Follow-up fatigue and limited patient monitoring

Lack of tools and time pressure

The safety and acceptability of using telehealth for follow-up of patients following thyroidectomy: A systematic review

Authors: Daniel J. Fetter  , Daniel C. Bolger  , ... SHOW ALL ... , and Daniel J. Fetter | AUTHORS INFO & AFFILIATIONS

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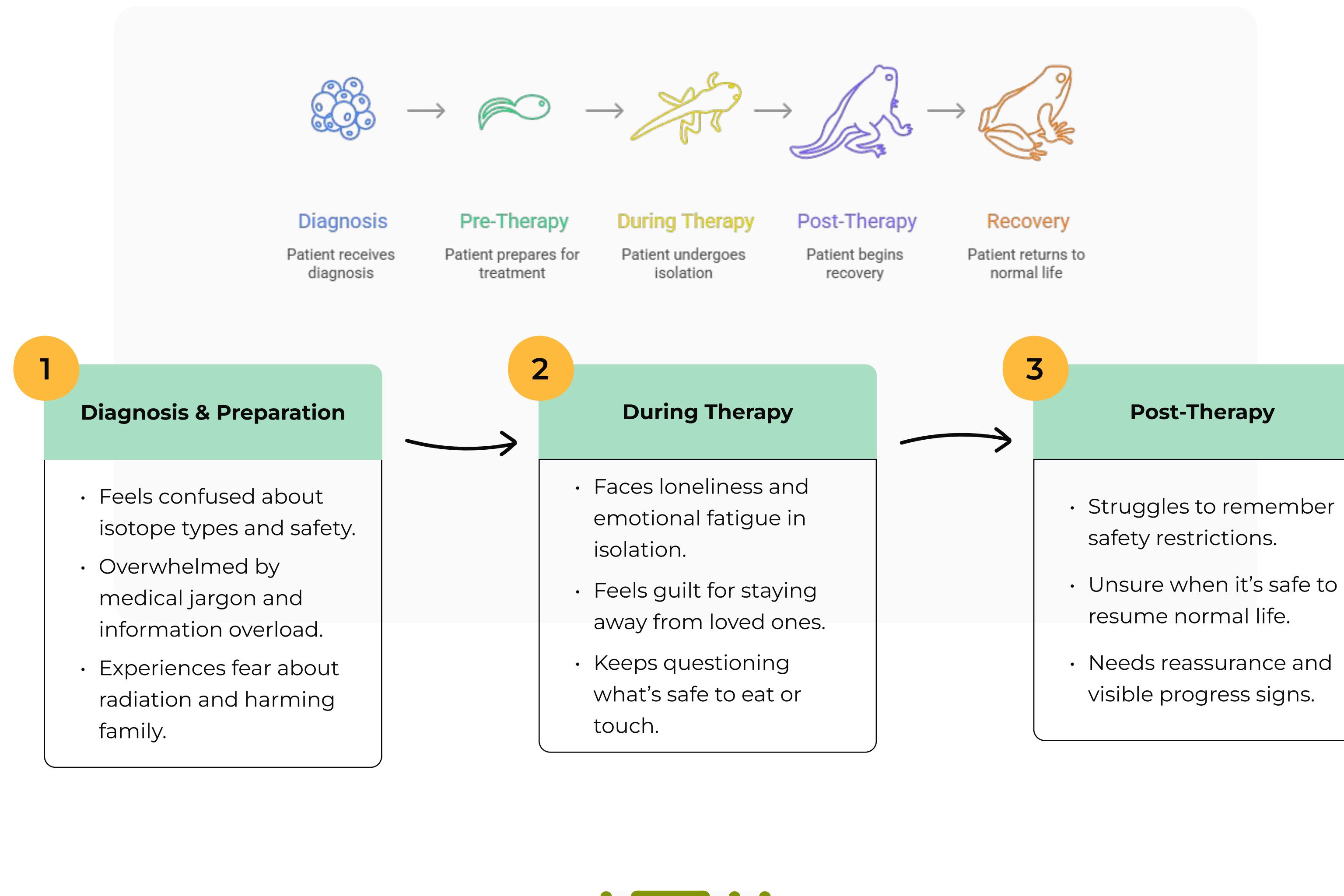
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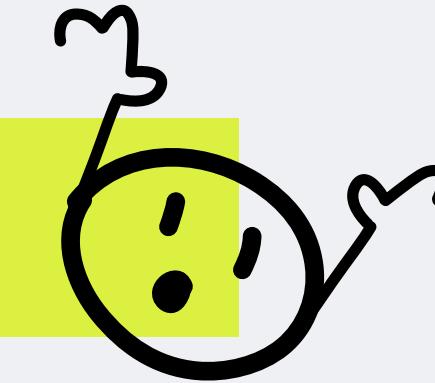
Decoding the Patient Experience



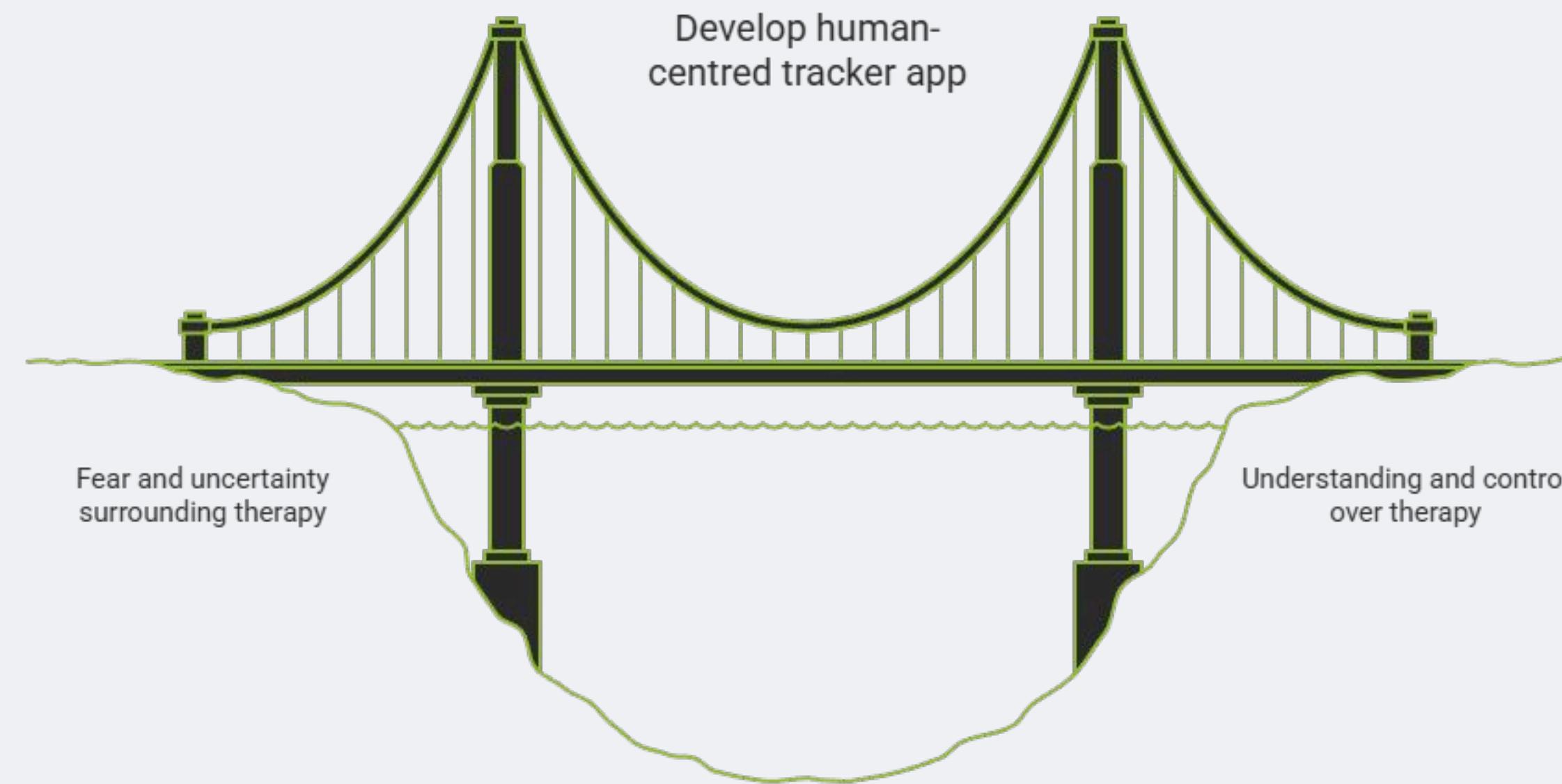
From Insights to Design Brief

The recurring patterns of **confusion, emotional fatigue, and communication gaps** revealed a clear opportunity for a tool that bridges understanding between patients and doctors during and after radionuclide therapy.

Design brief

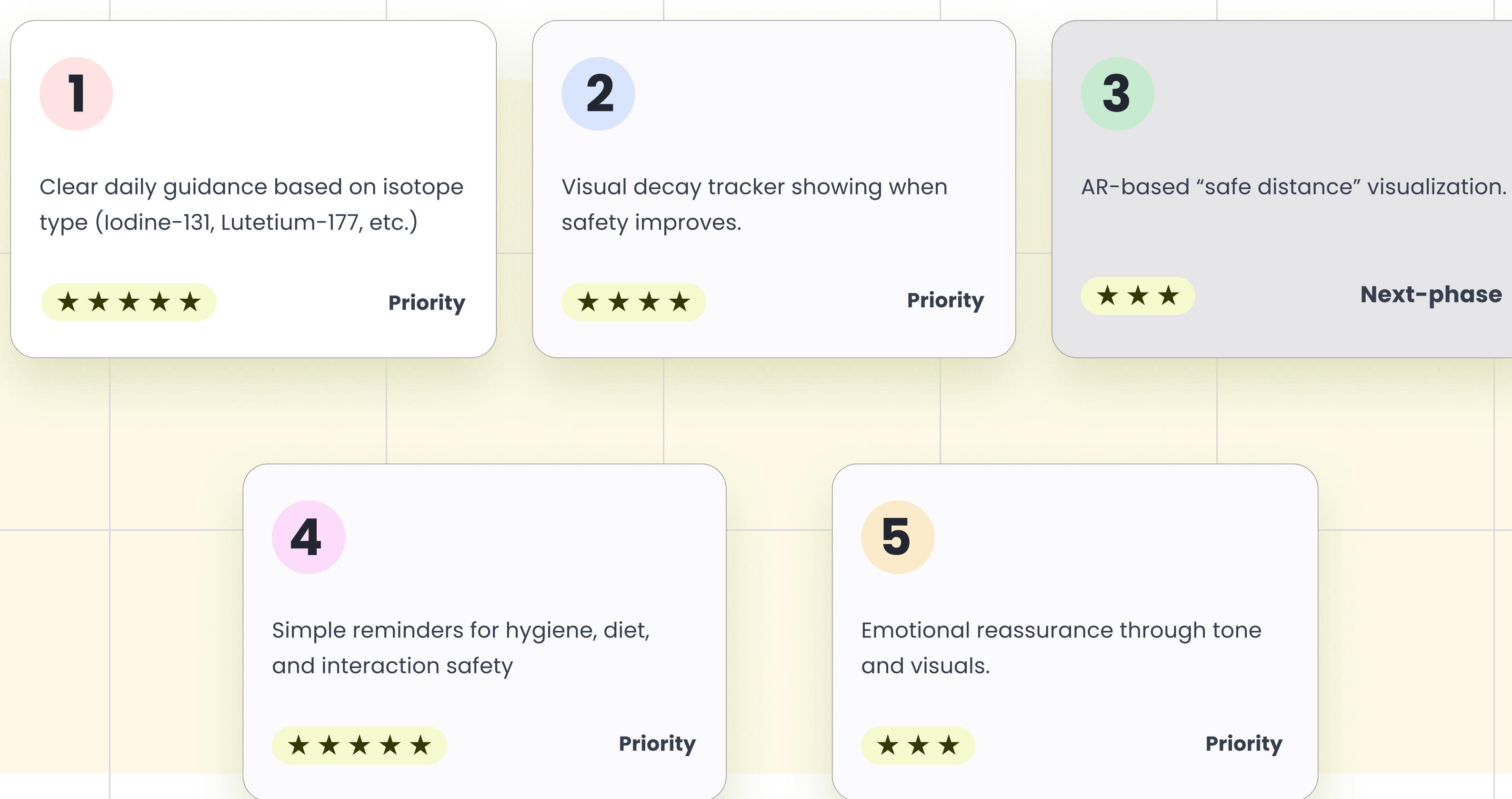


Patients undergoing radionuclide therapy often **feel anxious and uncertain due to complex medical instructions** and limited post-therapy guidance. **Doctors, meanwhile, face time pressure and fatigue from repeating safety explanations.** There's a need for a human-centered system that simplifies communication, improves clarity, and reassures patients through their recovery process.



To design an intuitive, empathetic digital tool that helps patients track their recovery progress, understand isotope safety in simple terms, and reduce repetitive workload for doctors.

Defining Core Needs and Priorities



Moving towards the solution

The screenshot shows a mobile application interface for managing thyroid treatment. At the top, there's a header with the time (9:41), signal strength, and battery level. Below the header, a welcome message says "Hi, Tejas 🙌" and "Let's heal, one habit at a time". There are two tabs: "Today" (selected) and "Schedule". A calendar shows days from 2 to 9, with Saturday (3) highlighted in blue. A purple box indicates "Just 3 days of Isolation" (1 of 4 day completed). An appointment for "Dr Anoop" at 02:00pm is listed under "Appointment for today". The "Daily Task" section includes "Drink the water" (500/2000 ML), "Walk" (0/10000 STEPS), and "Poop" (Flush 2 times). At the bottom, a progress bar shows "30/30 MIN".

A daily card provides their **day's schedule and precautions**, while the calendar shows **upcoming appointments with their doctor**. During the follow-up phase, the app **sends gentle reminders for upcoming scans, dietary restrictions** like avoiding salt or non-veg, and pausing thyroid medication as advised.

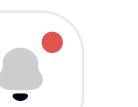
I added an Isotope Info tab in the bottom navigation, giving patients quick access to details about **different isotopes and educational videos** to help them understand their treatment better.

9:41



Hi, Tejas 🙌

Let's heal, one habit at a time



Today

Schedule

2 3 SAT 4 SUN 5 MON 6 TUE 7 WED 8 THU 9 FRI

Appointment for today

- Dr Anoop
02:00pm 1hr to go!!
- Post-Therapy Scan
04:00pm 3hr to go!!

Book An Appointment



This section offers a clear overview of your **medical schedule**, showing all your upcoming doctor appointments, follow-ups, and scan reminders for the coming weeks or months. **You can also easily schedule, reschedule, or add new appointments** anytime for better health management.

12:22 ↗



Details



Iodine-131 (I-131)
Isolation - 3 weeks



12

Beta

About

"Iodine-131 emits short-range radiation that destroys thyroid cells. Small amounts leave your body naturally, so precautions protect others from trace exposure."

Can I hug my kids? >

Is my food radioactive? >

Day

Week

2h30m

2h00m

The Isotope Detail Page helps patients understand the **isotope used in their therapy and how it affects their body**. Many patients shared feeling anxious and unsure about radiation safety and what precautions to follow. This page simplifies that information, giving them clear, easy-to-understand details so they can feel more informed and reassured during their recovery.

The Report Page gives patients a clear view of their recovery after radionuclide therapy. It shows **radiation levels**, **progress charts**, and **doctor notes in a simple way**. Patients can track their health, **download reports**, and stay reassured about their recovery journey.

Report

Basic

Scan

Follow-Up

Whole Body Scan (WBS)

Date of scan - 12 Aug 2025

Iodine-131
I - 131

RADIO ISOTOPE
I-131

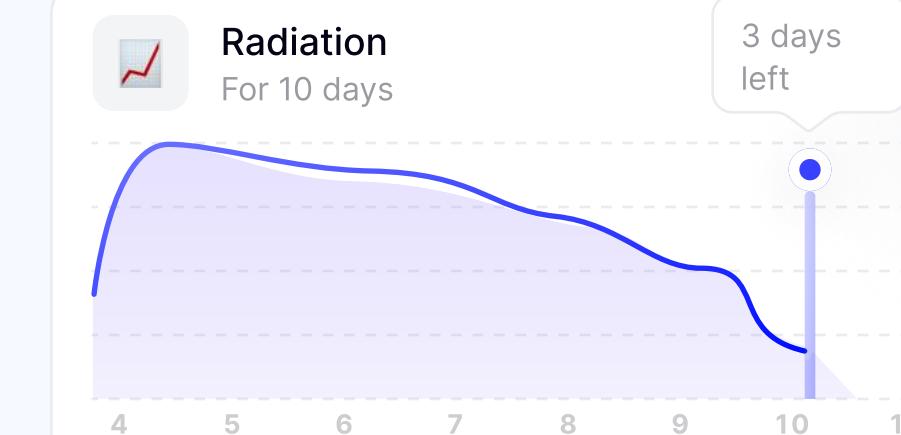
CURRENT RADIATION
0.02 μSv/hr

THYROID VALUE
T3 / T4 levels

THERAPY DATE
12 Aug 2025

NEXT APPOINTMENT
12 Oct 2025

CONTACT
Avoid 12 days



Precautions
Be careful with following details

Eat alone
Isolate your food separately

Short walk
Walk inside a closed space

Limit iodine/salt intake
Avoid it for atleast 1 month

Takeaway & Plans

Through this project, we learned how design can actually make healthcare feel less scary by explaining invisible things like radiation decay in a simpler way.

The app helps **doctors save time and makes patients feel safer and more informed** during recovery. We haven't done usability testing yet since his schedule's been really tight, but he's already **approved the design** so we're just **waiting for the right time to test it out together**.

Special Thanks to ~

Dr. Anup Angadrao Ghumare.

Radiation Medicine Centre, BARC, TATA Campus,
Parel, Mumbai.

Resident in Nuclear Medicine.

