

# Sensing Spaces of Healthcare: Rethinking the NHS Hospital

## *Project Design Guide Impact Report*

Bridget Morgan, with Victoria Bates, Rebecka Fleetwood-Smith,  
and Liz Worswick



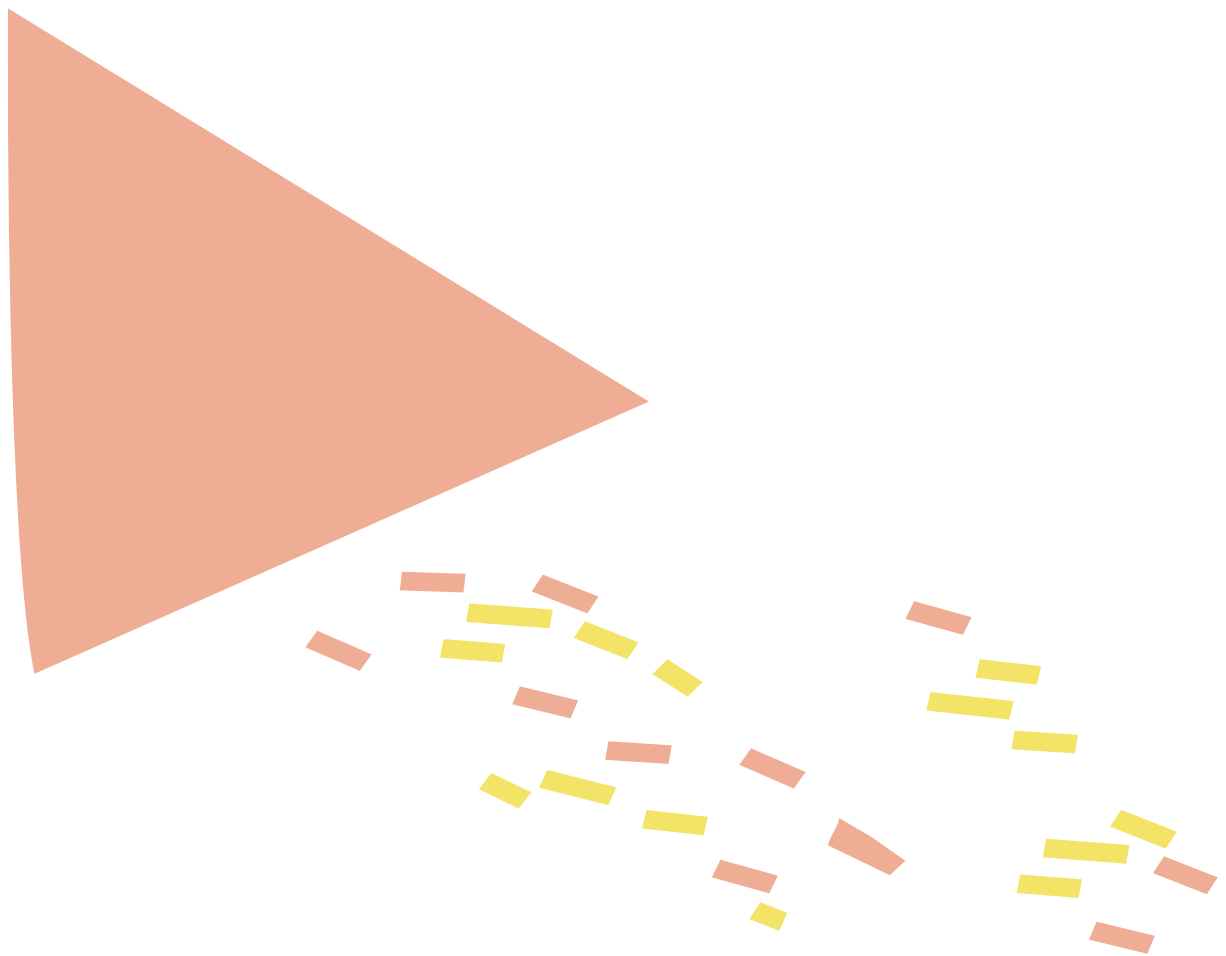


|                                                                                        |           |
|----------------------------------------------------------------------------------------|-----------|
| <b>Background</b>                                                                      | <b>5</b>  |
| <b>Introduction</b>                                                                    | <b>6</b>  |
| <b>1. Change in perceptions of sensory design</b>                                      | <b>8</b>  |
| 1.1 Greater awareness of the impact of sensory environments                            |           |
| 1.2 A more inquisitive mindset about sensory design                                    |           |
| 1.3 A deeper and more practical knowledge of sensory design                            |           |
| 1.4 A more strategic way of thinking about sensory design                              |           |
| <b>2. New sensory design practices in hospital spaces</b>                              | <b>10</b> |
| 2.1 Fostering collaborative work                                                       |           |
| 2.2 A more human approach                                                              |           |
| 2.3 Generating new engagement processes                                                |           |
| 2.4 A more inclusive focus                                                             |           |
| 2.5 Informing sensory design plans in hospital spaces                                  |           |
| 2.6 Embedding the senses into core principles                                          |           |
| 2.7 New perspectives on sensory evidence                                               |           |
| <b>3. Equipping hospital staff with confidence to tackle sensory challenges</b>        | <b>16</b> |
| 3.1 Usability, accessibility and adaptability of the design guide                      |           |
| 3.2 Empowering staff to advocate for sensory design needs                              |           |
| 3.3 A more creative mindset                                                            |           |
| <b>4. Creating new artistic processes</b>                                              | <b>21</b> |
| 4.1 Shaping artistic processes                                                         |           |
| 4.2 New artistic techniques                                                            |           |
| 4.3 Empowering participants                                                            |           |
| 4.4 Empowering artists                                                                 |           |
| <b>5. Changing how people think about sensory environments outside hospital spaces</b> | <b>24</b> |
| 5.1 Greater awareness of the impact of sensory environments outside hospital spaces    |           |
| 5.2 Generating new sensory design practices outside hospital spaces                    |           |
| <b>6. Longer-term change</b>                                                           | <b>26</b> |
| <b>Acknowledgements</b>                                                                | <b>28</b> |



# Background

The Sensing Spaces of Healthcare project's drive towards innovative, creative and multisensory research approaches, along with understandings that people's experiences of hospitals are incredibly diverse, led to the development of an adaptable design guide, created to equip healthcare teams with a range of tools and techniques with which to enhance hospital spaces. The design guide built upon the project's extensive methodological work and a multidisciplinary team co-produced the guide. The concept was developed during an in-person working group retreat and the guide was refined over further in-person and online workshops.



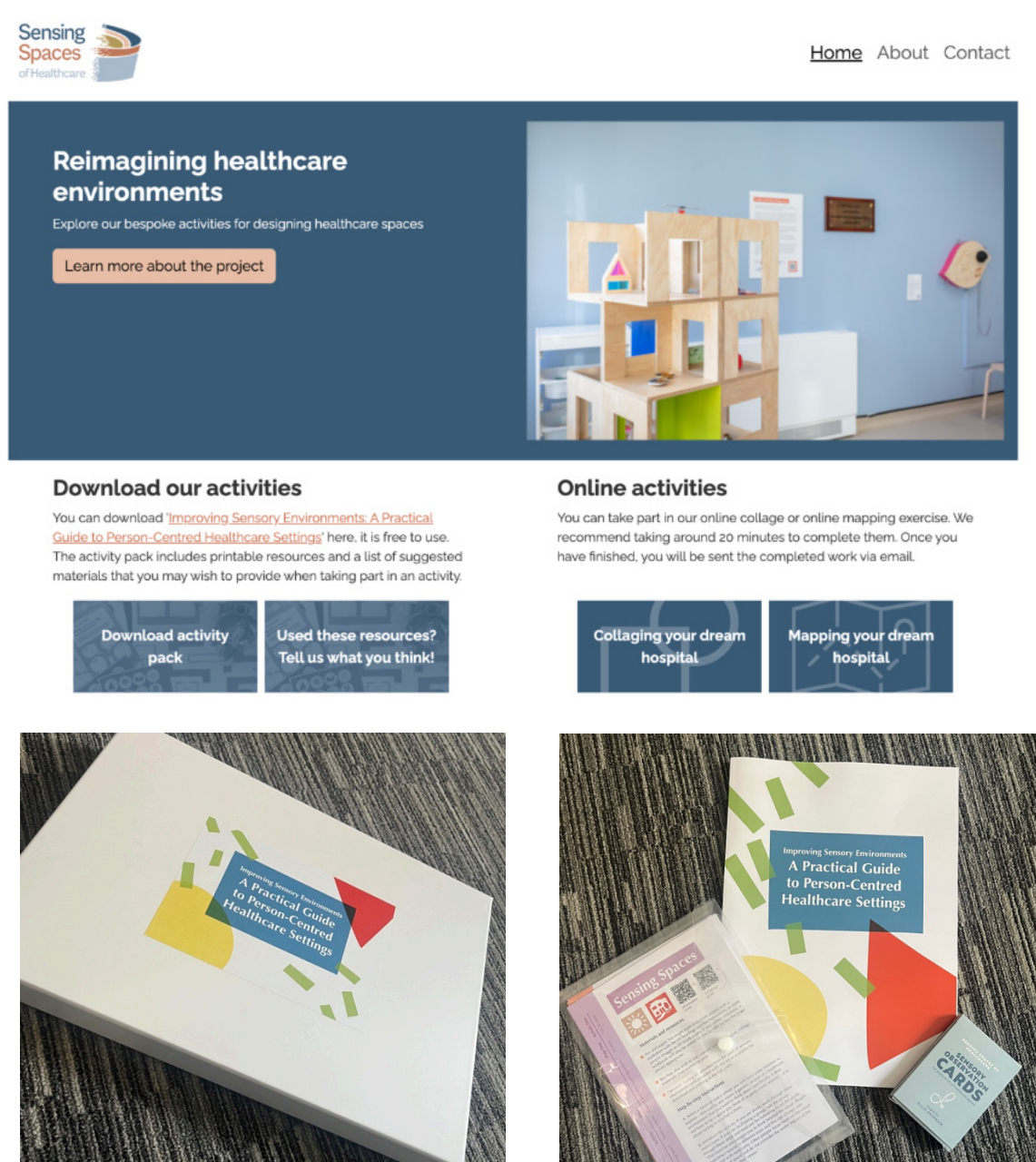
# Introduction

**Title:** Improving Sensory Environments: A Practical Guide to Person-Centred Healthcare Settings (physical and digital design guide, with supporting online activities)

**Created by:** Sensing Spaces of Healthcare team with a multi-disciplinary working group, including collaborators from Architects for Health and the National Arts in Hospitals Network.

**Purpose:** to create a design guide to support healthcare teams improve sensory environments.

**Design guide:** Design and illustration by Alex Higlett, Pirrip Press



Healthcare teams who utilised the design guide were invited to share their thoughts and feelings in feedback interviews or correspondence, and as formal NHS research through QR code feedback. Interviews were undertaken by two members of Air Arts (part of Derby & Burton Hospitals Charity), an Architect Director of Building Design Partnership, and two artists involved in the designing of a new cancer centre in York. Feedback postcard responses were provided by 11 staff members from a range of NHS Trusts following the use of the design guide in the Great Ormond Street Hospital (GOSH) 'Building Blocks of Clinicians' training in 2024, and two respondents scanned the QR code as part of NHS research. Written testimonials were sent by an Art and Design Manager at Royal United Hospitals NHS Foundation Trust, an Art and Design Project Officer at York and Scarborough Hospitals NHS Foundation Trust, and an Art and Design Development Manager at York and Scarborough Teaching Hospitals NHS Foundation Trust. This final participant also provided further written feedback and a feedback meeting. At each of these sites, at least one interviewee had been part of the working group that wrote the design guide.

Responses provide rich and generative insight into the impact of the design guide on people's thinking about sensory design. In particular, feedback shows that the design guide developed people's awareness of sensory environments, both in and outside hospital spaces. It equipped healthcare staff with confidence and knowledge to improve how they plan and design sensory spaces, informing new ways of working and new patient engagement processes. Feedback demonstrates that the design guide has also developed new artistic practices and empowered artists and patients involved in designing new healthcare spaces.

There is evidence that the design guide has impacted the planning of hospital spaces in different locations. To date, 200 physical kits have been distributed across the UK, as well as in Houston, Cape Town and Brisbane, and a Dutch translation has been distributed in Maastricht and Leuven. More broadly, the design guide has been mentioned in 'Art and Environment' guidance created by the National Arts in Hospitals Network. The guidance features the design guide as a useful tool to 'support meaningful and rich consultation around improving sensory hospital design'<sup>1</sup>. Downloadable English and Dutch versions of the design guide are hosted by Fringe Editions, a website dedicated to sharing recent creative research and practice in medical education<sup>2</sup>. Between 1 January 2023 and 7 July 2025, when tracking ended, the design guide had been downloaded 791 times on the Sensing Spaces of Healthcare (SSoH) website. It was viewed 26,196 times and the table here details the breakdown in locations.

| Top countries  | Views  |
|----------------|--------|
| United Kingdom | 17,498 |
| United States  | 3,954  |
| Netherlands    | 852    |
| Canada         | 768    |
| India          | 623    |
| Australia      | 602    |
| Finland        | 601    |
| Ireland        | 494    |
| Germany        | 412    |
| France         | 392    |

<sup>1</sup>'Art and Environment Guidance', National Arts in Hospitals Network, p. 13. <https://nahn.org.uk/wp-content/uploads/2025/06/NAHN-Art-Environment-Guidance-ONLINE.pdf>.

<sup>2</sup><https://www.fringe-editions.com/downloads>.

# 1. Change in perceptions of sensory design

There is evidence that the design guide has changed healthcare staff's perceptions of sensory design, in particular drawing attention to the sensory impact of hospital spaces and encouraging a more inquisitive and inclusive way of thinking about sensory design.

## 1.1. Greater awareness of the impact of sensory environments

In an interview, a member of Air Arts (part of Derby & Burton Hospitals Charity) shared that the project has created greater awareness among staff of the impact of sensory environments. In particular, they reported that the design guide encouraged staff to reflect on hospital spaces and notice new things about their environments.

[T]he amazing thing about this project is that the staff have said [things] [...] like "I sat in the space and imagined I was a patient and I saw it in a completely different way", or "I never noticed this before I sat down". And some of them have really sat down and sort of done some observations or spent time in the space and they're seeing it in a really different way [...] I didn't realise how cluttered it was until we did this. (Air Arts manager 1)

This feedback is echoed by another member of the Air Arts team, who shared that the design guide has impacted staff attitudes to hospital spaces and has inspired a new collective desire to make improvements.

[Staff] want to improve [the space] visually, there [are] lots of the other aesthetics of your senses they want to improve on as well. [...] [I]t's been a real team effort. It's not just a lone person that's kind of come up with these suggestions [...]. [...] [W]e've had today like peer support happening in the meeting independently, sort of saying, "well, I've got this resource, I'm happy to share it with you". (Air Arts manager 2)

## 1.2. A more inquisitive mindset about sensory design

There is evidence from Air Arts (part of Derby & Burton Hospitals Charity) that the design guide has encouraged people to be 'much more inquiring' about hospital sensory design. A team member shared in a feedback interview that the project has "made me question [...] where are we putting the artwork in the exhibitions, where we put the artwork up [is] where we put it for the last 20 years". They feel that the design guide has made them reflect that "the hospital landscape has changed in that time [...] so we shouldn't just keep doing things because we've always done them". The design guide has given them ideas of ways to improve sensory design, asking "are we reaching the right people? Are we in the right place, doing the right intervention?" (Air Arts manager 1)

### 1.3. A deeper and more practical knowledge of sensory design

A member of Air Arts (part of Derby & Burton Hospitals Charity) reported in an interview that the design guide has been especially useful in enhancing their knowledge of sensory design. They stated that “you just get that depth of understanding around how [the design guide’s] applicable”. In particular, this interviewee shared that the design guide has equipped them with new ideas they can draw on to improve spaces.

Whereas before I think I had all the theories and this is just, this is literally giving me the toolkit, being able to go, “yes, this is how the theories fit in, this is how we can apply them.” (Air Arts manager 1)

This interviewee reported that the design guide has encouraged the Air Arts team to “refin[e]” “even further” their approach to sensory design. It has prompted them to ask “how do we apply [theories about sensory design] in this specific place with these specific groups of people?” (Air Arts manager 1)

### 1.4. A more strategic way of thinking about sensory design

In an interview, a member of Air Arts (part of Derby & Burton Hospitals Charity) shared that the design guide has encouraged them “to consider the whole of the programme that we do for Air Arts”. They reported that the project has prompted them “to really investigate and boil down [to] what the problem is” when they work on refurbishing a space. Rather than sticking to past decisions to add “murals and things on the walls”, the design guide has caused them to “work out whether that’s fully improved the space” (Air Arts manager 2).

This interviewee reflected that the design guide motivated the team to consider areas where “we could be involved in conversations early on, when departments have been changed or moved”. They shared that they envision the design guide having a key role in future sensory design planning, stating that “this toolkit [is] ready and available to share with people that may have never thought about it in that space” (Air Arts manager 2).

Another member of Air Arts echoed this feedback. They shared in an interview that the design guide has prompted the Air Arts team to think differently about sensory design planning.

[W]e’re sort of going out into much more of an agency style approach. So we go out and we find out what the problem [is], where are the problems, what’s going on here, and then we have a raft of solutions that we can bring in and then we evaluate. [...] We have got to be much more strategic in our thinking. [...] So it’s been, yeah, [a] very fundamental change. (Air Arts manager 1)

## 2. New sensory design practices in hospital spaces

There is evidence that the design guide has changed healthcare teams' sensory design practices. Respondents shared that the design guide has equipped Art and Design teams with new design techniques and ways of working collaboratively, directly informing the sensory designs of new hospital spaces. More broadly, feedback shows the design guide has encouraged staff to embed the senses into wider hospital projects and the core principles of healthcare teams.

### 2.1. Fostering collaborative work

A testimonial letter from an Art and Design Development Manager at York and Scarborough Teaching Hospitals NHS Foundation Trust shows that the design guide has prompted new collaborative ways of working. They shared that the design guide has been used as part of a 'new partnership between Macmillan Cancer Support' and 'local people living with and affected by cancer' to build a new Macmillan Cancer Care Centre at York Hospital (Arts manager 1).

This contributor stated that the design guide helped inform patient engagement workshops, which 'will feed into the design work' of the new Macmillan Cancer Care Centre. Recommendations created from these workshops are tailored for each space and focus on sensory designs that convey feelings of 'openness and softness' and 'human connection/connectivity'. They reported that they hope to create an environment that feels 'homely' and brings in 'wildlife', 'indicating transition and distinction from clinical space' (Arts manager 1).

In another testimonial letter, an Art and Design Manager at Royal United Hospitals NHS Foundation Trust shared that inclusion in the design guide process, as a working group member, informed their approach to new collaborations with Arcadis Architects Interior Design team to design a new Dyson Cancer Centre. This Art Manager stated that working on the Sensing Spaces design guide inspired them to think in more sensory terms about their 'Land, Water, Sky' theme. This informed decisions including the use of:

a natural colour palette for the walls and floors, soft upholstery fabrics where permitted, acoustic and wood panelling to soften surfaces and dull noise, plenty of natural light and long views everywhere[,] [which] quite simply giv[e] patients and staff space to breathe. (Arts manager 2)

This contributor reported that the collaboration's success in creating a space that appealed to sensory experiences was recognised by the European Healthcare Design, which awarded the project the Interior Design and Arts award in June 2025 (Arts manager 2).

## 2.2. A more human approach

In written feedback, an Art and Design Development Manager at York and Scarborough Teaching Hospitals NHS Foundation Trust shared that the design guide has changed design planning processes. This participant reported that, in the early design stages of the new Macmillan Cancer Care Centre in 2024, the design guide ‘was primarily influencing how we approached engagement – particularly shifting conversations away from “what things look like” to “how spaces feel”’. They stated that using the design guide ‘fundamentally shifted the type of insight we gathered’ and led them to collect richer and more intuitive data into people’s experiences with hospital spaces.

We began to capture emotional, sensory and experiential responses that would not have emerged through traditional consultation. That created a much stronger foundation for decision-making, particularly in areas like arrival experience, waiting and navigation through the building. (Arts manager 1)

## 2.3. Generating new engagement processes

In a testimonial letter, an Art and Design Development Manager at York and Scarborough Teaching Hospitals NHS Foundation Trust reported that the design guide had ‘informed’ a new patient engagement process. Drawing on ‘techniques and processes’ from the design guide, they stated that a new patient engagement process gave patients the chance to ‘co-design the revamped’ Macmillan Cancer Care Centre with ‘the wider impact of the space on our other senses’ in mind (Arts manager 1).

The Arts and Design Development Manager reported in a letter that, in December 2023, a series of interactive workshops using the Sensing Spaces of Healthcare approach were attended by 17 guests. They were led by six Macmillan staff, six Trust staff, two colleagues from P+HS [architects] and one community artist. The activities ‘explore[d] different spaces (entrance, central area, and garden)’ and encouraged participants to ‘consider how users want to feel in them, and how this could be achieved through art and design’ (Arts manager 1). In addition to written feedback, the Arts manager 1 elaborated that the design guide played a key role in unblocking challenges around design in the patient engagement process. In particular, the design guide untangled:

tensions between clinical efficiency and patient experience. Using sensory and feeling-based insights allowed us to reframe discussions. Instead of debating design preferences, we could anchor decisions in [asking] “how will this make someone feel at a very vulnerable moment?” (Arts manager 1)

The Arts and Design Development Manager stated that adhering to a SSoH approach created a ‘more inclusive and balanced participation’. It also led to ‘more constructive and forward-looking insight’ and ‘a shared language around experience rather than opinion’ (Arts manager 1).

## 2.4. A more inclusive focus

A feedback interview with a member of Air Arts (part of Derby & Burton Hospitals Charity) shows that the design guide has created new sensory design practices in hospital spaces. In particular, Air Arts Manager 2 shared that the design guide has “started a conversation” among healthcare staff about sensory environments. This feedback is echoed by another member of Air Arts (part of Derby & Burton Hospitals Charity) who reported that the design guide has caused staff to think beyond adding murals to a room. Instead, it has made them realise that “what we need to do is declutter the space and it’s the information or it’s the wayfinding or it’s the signage or the colour coding [that] is not working” (Air Arts manager 1).

Another Air Arts team member reported that the design guide has equipped healthcare staff with new reflective tools to draw on when attempting to improve the sensory environment.

[Healthcare staff] really like the mapping idea, this idea of visualising their space, and they’ve done that themselves on their staff notice boards, putting out a map and asking people to [add] post-it notes or draw what they want their dream hospital to be. (Air Arts manager 2)

The same interviewee shared that healthcare staff have been empowered by the design guide to utilise questionnaires to gather feedback from service users on their sensory experiences of a hospital space. However, they note that staff require some additional support to “facilitate [answering] some of those questions” in questionnaires and interviews. This staff member stated that “one department’s tried a mood board for patients”, gathering “general” feedback about natural imagery. They shared that the Air Arts team will be on hand to assist staff in improving interview techniques, helping to craft questions that will allow them to understand “[w]hat worked really well, what’s not [worked and] what they’d like to do” (Air Arts manager 2).

## 2.5. Informing sensory design plans in hospital spaces

In a testimonial letter, an Art and Design Manager at Royal United Hospitals NHS Foundation Trust shared that their role in the design guide, as a working group member, has directly informed their thinking about the planning of a new Dyson Cancer Centre. This contributor described the design guide as a critical ‘touchstone and quality check’ that ‘kept the importance of the senses at the forefront of my mind throughout’ the design process. In particular, they reported that the design guide had inspired decisions to include works commissioned by artists with ‘sensory qualities [...] to soften an often-harsh clinical environment’. These include an:

immersive audio/visual of a woodland from dawn to dusk by Chrystel Lebas, hand-painted murals of the forest garden for the Macmillan Wellbeing Hub by Natasha Clutterbuck, a courtyard light sculpture inspired by lily ponds by Bruce Munro [and] the practical application of beautiful garden designs printed onto SDS protection panelling by Kate Bond for the harsher environment of the Chemotherapy Suite. (Arts manager 2)

This contributor stated that post-evaluation feedback gathered in January 2025 after the Centre opened in April 2024 revealed that ‘the art and design had a positive effect on patient well-being, with 45% affirming the design contributed to their sense of well-being’ (Arts manager 2).

In another testimonial letter, an Art and Design Development Manager at York and Scarborough Teaching Hospitals NHS Foundation Trust also shared that the design guide shaped the design of a new Macmillan Cancer Centre in York. In particular, the design guide influenced ‘how arrival spaces were considered as emotional thresholds’ and emphasised ‘the importance of calm, non-clinical atmosphere in waiting areas’. It encouraged the Art and Design team and collaborators to reflect on ‘the role of light, material and visual environment in reducing stress’ and to consider ‘how artwork and environment contribute to orientation and reassurance’ (Arts manager 1).

In written feedback, this contributor stated that the new Macmillan Cancer Centre is due to open in summer 2026. Thanks to the design guide, it has become an environment that is conscious of ‘how people move through the space emotionally, not just physically’ and utilises artwork ‘that reflects community’. As a result, people visiting the Macmillan Cancer Centre will experience the space as ‘less clinical and more human’, ‘calmer and more intuitive to navigate’ and ‘more supportive emotionally, particularly at points of anxiety’. Overall, the Centre’s curated sensory environment will affect people’s emotions by ‘reduc[ing] anxiety on arrival’, ‘increas[ing] comfort in waiting spaces’, promoting a ‘greater willingness to engage with staff’ and instilling ‘a sense of dignity and being cared for beyond treatment’ (Arts manager 1).

## **2.6. Embedding the senses into core principles**

There is evidence that the design guide has led to changes in the strategic focus of Air Arts (part of Derby & Burton Hospitals Charity). In an interview, a member of Air Arts reported that it has drawn the team’s attention to music and staff training, as well as the capacity of visual artworks to enhance a space.

It’s not just visual arts we’re looking at. So once the sensing spaces approach has been done, it might be that the problem is solved with music or staff training or creative clinical training or any of the other sort of strands, anything that we do, we can find different ways to solve [the problem]. So whilst we started thinking of it as an enhancement programme, the whole Air Arts programme is going to go this way. (Air Arts manager 1)

The design guide has led to changes in the Air Arts team’s approach to sensory design. The same interviewee shared that the team has begun to engage more widely with the concept of sensing spaces as a result of engaging with the design guide.

[I]n terms of calling it sensing space of healthcare, I mean, that's the name that we just use and my whole senior leadership team will talk about, "oh yeah, we're using [the] sensing spaces approach" and [...] that's really good that [...] it's being adopted. [...] [Because] it's been well tested in an acute trust with a lot of pressures, then it will be a fairly robust thing. (Arts manager 1)

In an interview, an Art and Design Development Manager at York and Scarborough Teaching Hospitals NHS Foundation Trust reported that the design guide has also encouraged healthcare staff to continue to embed the senses into design work. This interviewee shared that the principles of the design guide have "stayed with us", prompting staff to "talk and change our way[s] and really think about [...] place and context and multi-sensory environments with everybody we work with".

In written feedback, this contributor shared that the design guide has 'fundamentally shifted how the Arts Team approach [design] work'. They stated that, in collaboration with artists, the team now:

prioritise[s] sensory and emotional experience[; we] use creative methods as a core engagement tool, not an add-on [...] [;] [and] think about environment as part of care delivery, not separate from it. (Arts manager 1)

This contributor reported that the successful design of the new Macmillan Cancer Centre in York has led to wider adoption of a senses-led approach across 'arts and engagement work', 'capital projects' and 'staff wellbeing activit[ies]' (Arts manager 1).

## **2.7. New perspectives on sensory evidence**

An Art and Design Development Manager at York and Scarborough Teaching Hospitals NHS Foundation Trust reported that the design guide has changed the way sensory evidence is perceived by healthcare staff. In written feedback, they stated that sensory work 'is so often undervalued and not prioritised'. However, engaging with the SSoH project has shown them that 'experiential and sensory insight is valid evidence', that 'qualitative data has real value in shaping environments' and that 'patient voice can be captured in more meaningful ways, particularly in contrast to more traditional engagement approaches' (Arts manager 1).

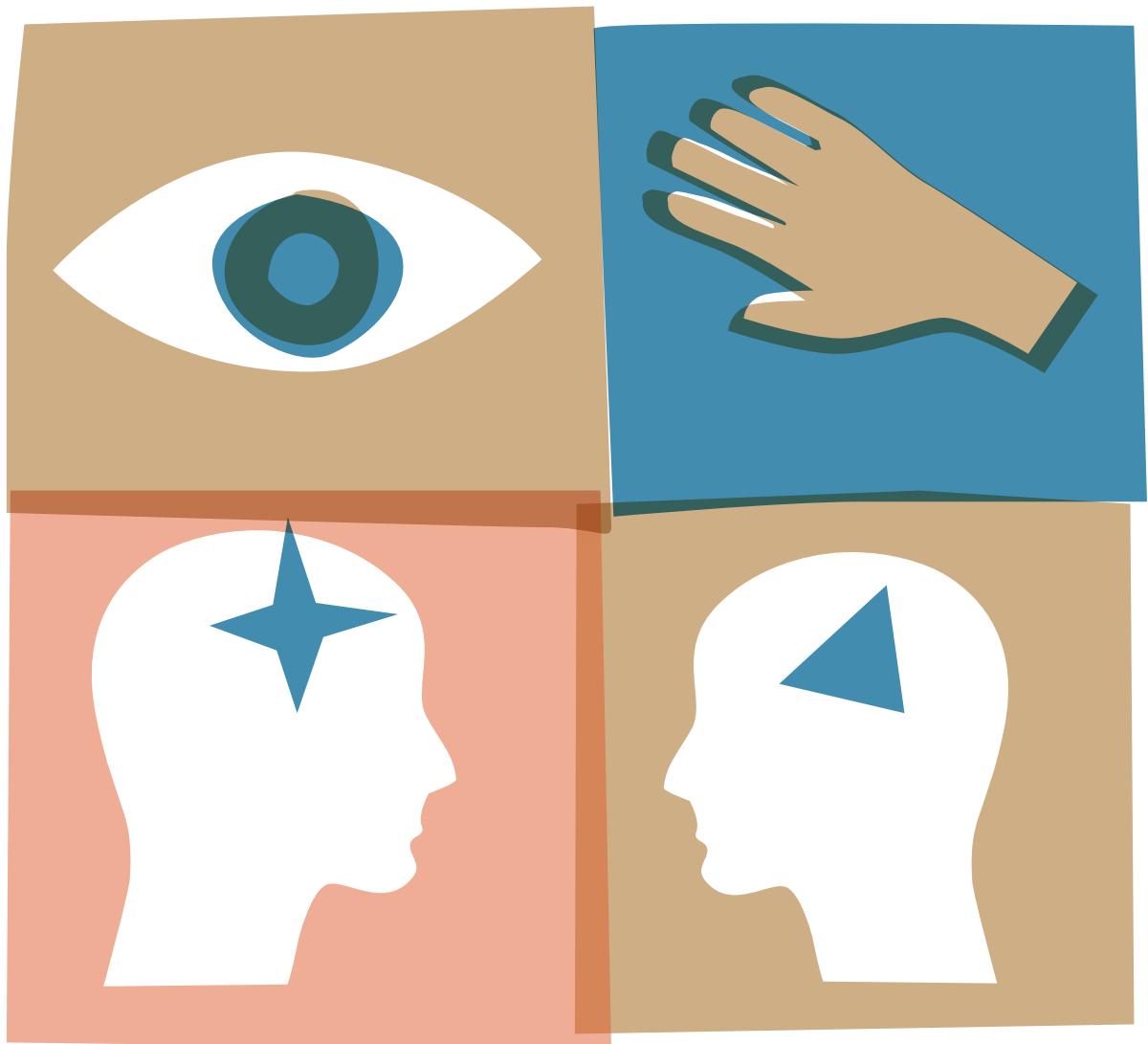
Utilising the design guide to plan the new Macmillan Cancer Centre in York has shifted 'understanding[s] of what "good evidence" looks like' in the context of design planning. In particular, this contributor shared that the design guide has demonstrated that:

structured, sensory-led engagement produces deeper and more actionable insight, experiential feedback can be more valuable than preference-based feedback, and the way questions are framed fundamentally shapes the quality of responses. (Arts manager 1)

Arts manager 1 stated that SSoH principles have gone beyond the design of the new cancer centre. They reported that the Art team is 'actively applying SSoH principles across' a range of projects, including:

wider hospital sites, collections and environment strategy, new engagement models (e.g. zines, mapping, participatory work), community diagnostic centres and future developments. (Arts manager 1)

Engaging with the design guide and embedding it into wider hospital programmes has demonstrated to the Art and Design team that 'when you ask people what they like, you get opinion – when you ask how something makes them feel, you get insight' (Arts manager 1).



### 3. Equipping hospital staff with confidence to tackle sensory challenges

There is evidence that the design guide has equipped healthcare staff with confidence to tackle sensory challenges in hospital spaces. In feedback, users commend the accessibility of the design guide and report feeling empowered to advocate for themselves and others about sensory challenges in hospital environments.

#### 3.1. Usability, accessibility and adaptability of the design guide

In an interview, a member of Air Arts (part of Derby & Burton Hospitals Charity) shared that the design guide is “really, really valuable”. They commend the design guide as “well presented” and “very, very thorough” (Air Arts manager 1). This is echoed by Air Arts manager 2, who reported that the “little box of cards” in the design guide felt particularly “manageable” for hospital staff.

[The Sensory Observation cards] really allowed them to switch their brains to think in a different way: as opposed to sort of thinking about it logically, it was really trying to think about their senses. That [...] was key to getting them to understand the process by which we wanted them to view the space and try and sort of analyse what the problems potentially were. (Air Arts manager 2)

The same interviewee shared that the Sensory Observation cards had “really clear instructions” and felt easier to use “as opposed to the big booklet or an online link”. In fact, the cards allowed the Air Arts team to explain sensory design planning in “manageable” tasks by giving healthcare staff “just two or three or one card” (Air Arts manager 2). Another staff member from Air Arts stated that the design guide was “really useful” in presenting “quite abstract” ideas about the ‘Dream Hospital’. In particular, the design guide allowed healthcare staff to think about the ‘Dream Hospital’ in their own time by encouraging them to ask ‘what do you think would work?’ and ‘how do they feel about the pack?’ (Air Arts manager 1)

This feedback is supported by postcards completed by 8 NHS staff at a GOSH training workshop built around the design guide, which was part of the larger Building Blocks for Clinicians course in 2024. When asked to select words that describe their experience of the workshop, all respondents felt that the event was a positive experience. The table below details the breakdown in responses - illustrating people’s positive responses to taking part.

Three respondents described the workshop as ‘inspiring’, ‘eye-opening’, ‘insightful’, and ‘thought-provoking’. Two participants shared that the workshop was ‘really excellent and thought provoking’ and that it ‘made you think. Re-evaluation of different needs of people and some surprising’.

| Circle one or more speech bubble(s) or complete an empty speech bubble to tell us how you found this workshop | Total |
|---------------------------------------------------------------------------------------------------------------|-------|
| Enjoyable                                                                                                     | 5     |
| Stimulating                                                                                                   | 4     |
| Creative                                                                                                      | 3     |
| Fun                                                                                                           | 2     |
| Rewarding                                                                                                     | 1     |
| Meaningful                                                                                                    | 1     |
| Boring                                                                                                        | 0     |
| Confusing                                                                                                     | 0     |
| Difficult                                                                                                     | 0     |
| Time-consuming                                                                                                | 0     |

Postcard feedback shows that NHS staff gained a deeper understanding of abstract ideas, such as what an ideal hospital space would look like. When invited to share what they had learnt, three respondents stated they left feeling inspired about the future.

‘[I imagined] BETTER!’.  
‘[I imagined] the art of the possible’.  
‘[I imagined] brilliant hospital spaces’.

The design guide has been adopted by wider healthcare staff teams and architects. In feedback, users commend the accessibility of the design guide in breaking down sensory design planning in legible, obtainable ways. Feedback from an anonymous user shows that the design guide has been shared with tutors and senior healthcare leadership at a university, and with ‘Together and Workforce teams’ at an NHS Trust ‘to support increase[d] accessibility [for] patients and staff’. This user felt that the design guide’s most useful feature is the ‘Sensory observation cards and Evidence base’ and it has made them ‘much more aware of [the] sensory needs of patients and staff’ (A7013 NHS research). Another anonymous user reported that they have used the design guide ‘[t]o inform design decisions in outpatients waiting areas’. The most useful features of the design guide here was ‘the variety of methods and the fact it enables lots of different ways to interact’ and ‘the fact that it allows for co-operation [in seeking] solutions to problems’. They reported that the design guide has ‘made us much more aware of the other senses, not just visual’ (A7012 NHS research).

In an email, an Art and Design Project Officer at York and Scarborough Hospitals NHS Foundation Trust reported that the design guide was a ‘useful’ tool to introduce healthcare staff to sensory design planning. They shared that ‘it will be important for us to keep reviewing it together, making time to discuss what’s working, and exploring how we can continue to develop and “play” with it as a living toolkit’ (Arts manager 3).

Finally, the Architect Director of Building Design Partnership stated in a feedback interview that the Sensory Observation cards within the design guide are being embedded into “stakeholder engagement sessions more widely in healthcare” as part of a wider Belonging Inclusive Design Group (Architect Director).

### 3.2. Empowering staff to advocate for sensory design needs

The Architect Director of Building Design Partnership shared that the design guide has “made me much more thoughtful [...] in terms of advocating more strongly for autonomy”, in particular for staff. They reported that the design guide has the potential to empower staff to take control of their own environments, which supports their wellbeing.

[S]taff might be calmer if they have the ability to change their own requirements, which might be different from staff member to staff member. To adjust the heating or the lighting or whatever within the space to their requirements and things. I feel like I would advocate for that more strongly than I would have done in the past. I would have always advocated for it, but I wouldn't have had such weight behind it as to why it was important and not just nice-to-have, I think. (Architect Director)

This is echoed by a member of Air Arts (part of Derby & Burton Hospitals Charity), who stated in an interview that the design guide has encouraged hospital staff to think more carefully about their own and others' sensory needs.

[H]aving the autonomy to go, “actually, this is the place I work in and I could make a difference here” [has] [...] really spurred them on and gives them that sense of being able to do well by their patients and their own staff and friends and colleagues [...] naturally you think that's left to the managers, but it's not, it's the people on the ground. (Air Arts manager 2)

Another Air Arts team staff member reported in an interview that the design guide has encouraged hospital staff to recognise their own role in controlling the sensory environment of spaces and has equipped them with a sense of self-advocacy.

I think the autonomy is really important because I think a lot of the time they don't feel that they have that. So they might be in the space and they're aware that [...] the posters need to go or something, but they maybe don't have the confidence to do it because they haven't got justification for it. And I think what this process is giving them is that kind of [power to say] [...] “we know now that this is a problem, so I'm going to do something about it”. (Air Arts manager 1)

Nine postcard responses from healthcare staff (from a range of NHS Trusts) at a GOSH workshop built on the design guide reinforce this feedback. Postcard feedback demonstrates that healthcare staff gained a greater understanding of their role in influencing sensory design and the need to advocate for change.

'[I became] aware of some of our local challenges'.  
 '[I noticed] other people feeling the same frustrations'.  
 '[I noticed] others' frustration. The need to be vocal and share thoughts/feelings'.  
 '[I discovered] our basic needs are often under-represented'.  
 '[I discovered] that everyone is a piece of the puzzle – will it ever be 100% right?'  
 '[I discovered] I can use sensing in spaces to improve environment even if [the] design is fixed'.  
 '[I remembered] that without a good working environment, patients also do not have a great experience'.  
 '[I imagined] that my role is meaningful'.  
 'I realised the considerations needed when looking at a healthcare space'.

### 3.3. A more creative mindset

In a feedback interview, an Art and Design Development Manager at York and Scarborough Teaching Hospitals NHS Foundation Trust shared that the design guide has increased hospital staff engagement in design planning. In particular, this contributor reported that senses-led workshops using the design guide have encouraged “loads of staff” to interact with each other “through the senses”. They shared that these workshops have “definitely” fostered collegiality between staff, developing new understandings of others’ experiences.

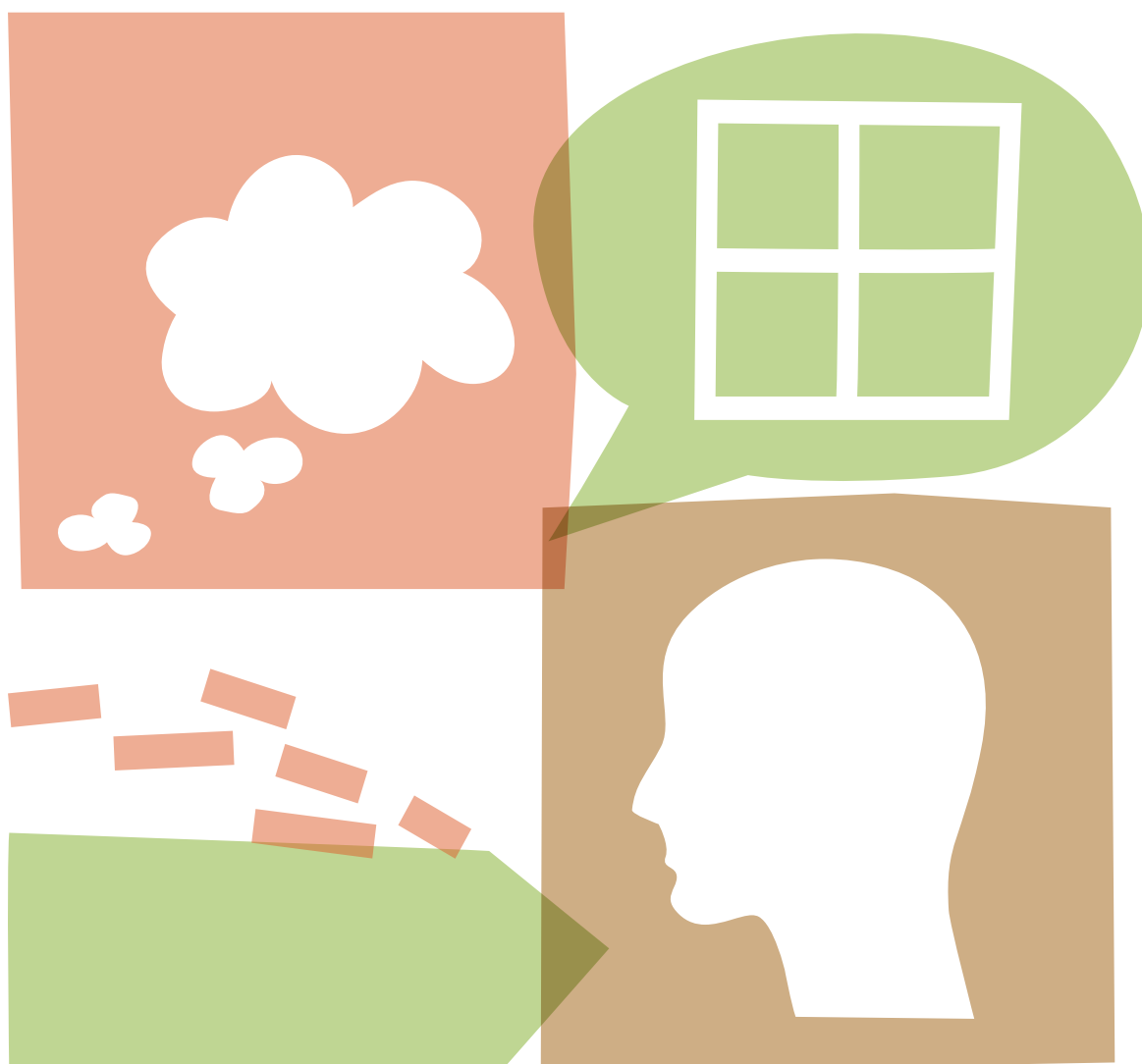
[W]e found [...] photographers, leather-makers, musicians, all within the staff. [...] [O]ne member of staff had talked about their daughter who's neurodiver[gent]. And just as we're standing in that area, the trucks go down the corridor, it's so noisy and she went, “that noise. Imagine coming in with somebody who's neurodiver[gent] and there's all those noises going on.” [...] [T]hat's why it's good to sort of open it with the senses and think about [...] what could be adapted to [...] people's needs more. (Arts manager 1)

The Art and Design Development Manager reported that these workshops have encouraged staff to understand each other's role in hospital spaces more clearly. Staff have begun to utilise reflective techniques introduced to them through the design guide to understand their colleagues and the space in which they work. This interviewee stated that one member of staff who leads the facilities team:

came back in to see us by chance and then engaged with playing [a collaborative artist's] game, who then turned it into the senses yoga sort of game and incorporate[d] movement as well into it. And just her experiences, you know, of how she'd started thinking creatively through the senses. How she could work with her team [...] because in facilities, she said, they have got movement, they're moving all the time in their space. So how can we get [an understanding of] [...] the movement of somebody using a [...] brush or a mop and how do they fill the space? (Arts manager 1)

This feedback is echoed in several postcards completed by NHS staff at a GOSH workshop built on the design guide. These responses show that healthcare staff gained new creative perspectives about their environment, which helped foster interpersonal connections.

'[I became] creative. [T]houghtful and reflective'.  
'[I became] re-focused on thinking of sensory spaces'.  
'[I felt] challenged but mindful'.  
'[I felt] positive thinking about sensing spaces'.  
'[I discovered] how similar my ideas were to other people's'.  
'[I discovered] so much is possible'.  
'[I discovered] being creative'.



## 4. Creating new artistic processes

The design guide impacted the work of artists working in the healthcare sector. Two artists involved in the planning of a new Macmillan Cancer Centre in York were interviewed about using the design guide to run patient engagement workshops. Their responses provide rich and generative insight into the impact the design guide has had on developing artistic processes and empowering artists and patients within engagement processes.

### 4.1. Shaping artistic processes

In a feedback interview, an artist involved in patient engagement processes reported that the design guide helped direct the focus of workshops. In particular, “it was really, really helpful to think about feelings rather than, you know, [saying] ‘this is what art I want’”. The value of a senses-led approach was made especially clear in comparison to what they described as a “traditional consultation feedback approach”. This interviewee shared that a more conventional approach is “a disaster, usually” when discussing art because “it’s so subjective”. They reported that “we’ve probably learned some quite valuable lessons from this process for future projects with York hospital and my own other projects as well. [...] [T]he more traditional form of sort of evaluation, feedback and so on is fraught with problems in terms of [...] representation” (Artist 1).

This feedback is echoed by another artist, who noted that, in contrast to conventional engagement approaches, a senses-led model was useful to gaining “richer, deeper” responses from participants, “tapping into [their] feelings and thoughts”. This interviewee shared that the design guide helped focus conversations about sensory hospital spaces.

[T]he cancer care treatment centre is next to the car park. And the car park, every time the barrier goes up, it goes beep. And [...] people were saying about being in this waiting room, waiting to go through the treatment and that being [...] a really overwhelming experience. (Artist 2)

Artist 2 reported that this feedback was directly used to create “a floor plan of the cancer care treatment. We used that to create some sort of [...] doodled quotes in the floor plan”.

### 4.2. New artistic techniques

In an interview, an artist involved in the patient engagement workshops shared that a senses-led approach was being adopted in wider projects. This interviewee reported that the design guide has highlighted to artists new techniques that could help them collect more intuitive insights from participants.

[W]e've just done something this morning [...] building on using that senses approach [...]. So we had a quick survey that asked about [...] people's experience of arts and creativity and senses. And then we did like this sensory group print where I'd made these block print of [the] senses, so like an eye, an ear, that kind of thing, got people to [...] answer the questions and then we got them to [...] do this print together. So using that idea has helped sort of tap into that way of being engaging. (Artist 2)

Artist 2 shared that a senses-led approach “takes people away from that kind of pressure of the direct question”. They suggested that it gathered more insightful data because it encouraged “reflection”, which is often “quite difficult to get” through other methods and stated that the design guide had inspired them to “think differently about what else could you do” in workshops to understand participants’ perspectives. They shared a new engagement activity they had created to further enhance patient engagement workshops:

I've made this little game and it's like you spin a wheel, [...] it's called 'come to your senses'. [...] [T]here's a lot of multiple-choice quiz that goes with that, that then gets people to talk [...]. So it's a factual thing [...] that can lead you into [asking questions like], “so tell me about art in the hospital”. So I like that idea of trying to use the senses in [a] [...] playful way. So it's given me a good challenge to kind of develop that idea. And I'm going to try and use that sort of [technique] elsewhere. (Artist 2)

#### **4.3. Empowering participants**

Two artists involved in the patient engagement process reported that a senses-led approach increased patient participation. Artist 1 stated that “people feel much more engaged in the process [...] they can loosen up and free up their thoughts”. Artist 2 shared that the design guide offers an “open-ended” approach in workshops that keeps activities “fun” while “giving space for people to sort of open up”. Both interviewees felt that patients “don't always feel able to” talk in activities built on more conventional engagement models (Artist 2). These two artists reported that the design guide was “really very important” in helping them to empower participants to engage with workshops, where participants are encouraging to “stop thinking and start feeling” (Artist 2). As a result, workshops influenced by the design guide “build ownership in the project” (Artist 1). This means that “even if the final outcome actually isn't necessarily to the taste of the person who contributed in the first place, they've been involved and it was a positive involvement” (Artist 1).

#### **4.4. Empowering artists**

The two artists involved in the patient engagement process reported that workshops influenced by the design guide empowered them to lead activities. Artist 1 felt that a senses-led approach creates answers that are open “to various interpretations”, opening new possibilities.

It allows the artists to then take that on as the experts. [...] [W]e should be seen as experts in our field to be able to take that information and to produce something meaningful from it. (Artist 1)

This interviewee stated that in empowering artists, the design guide helped create a new “energy and passion” in workshops that “everybody then picks up on”, which produces “a more positive experience”. Artist 1 reported that a senses-led approach “expands the opportunities, whereas the traditional approach narrows them”. As a result, they shared that “I am totally on board with going forward with this new approach”.



## 5. Changing how people think about sensory environments outside hospital spaces

There is evidence that the design guide is applicable to sensory environments outside hospital spaces. Feedback shows that the design guide has encouraged people to reflect on sensory design elements in train stations, schools and other workplaces, and has been applied to these different settings to meet people's sensory needs.

### 5.1. Greater awareness of the impact of sensory environments outside hospital spaces

An interview with an Architect Director of Building Design Partnership shows that the design guide has widened understandings about sensory environments beyond hospitals. They reported that the design guide drew their attention to the acoustic impacts of spaces.

I was in a train station [...] and I closed my eyes and I listened and I suddenly became completely aware that the most prevalent noise in the space was click, click, click, click, click. (Architect Director)

This interviewee also stated that the design guide is “definitely super-relevant” to schools and shared their concerns about their child's experiences of overwhelm at school:

I had in my mind the design guide and the work that we'd done and I was thinking “I wonder if there's anything sensory going on?” because obviously that feeling of her being overwhelmed in the school environment from a sensory perspective had [...] come out in her autist[m] diagnosis. (Architect Director)

The same interviewee shared that the design guide is also “super-relevant” to office spaces, particularly after the Covid-19 pandemic, which increased our reliance on technology. They noted that offices went from “having a phone call maybe twice a day to everybody talking at each other on Teams calls”, which has in turn had a large impact on people's sensory experiences. They went on to observe that:

[s]ometimes there'll be five people in an open plan office on the same call in the space. [...] [W]e get a lot of people talking about that's one of the reasons why they don't want to come into the office because they find it overwhelming, particularly if they have sensory processing things, diagnosed or undiagnosed. People find the Teams call in an open plan office really disruptive. (Architect Director)

### 5.2. Generating new sensory design practices outside hospital spaces

The Architect Director of Building Design Partnership revealed that the design guide has “changed my thinking” and approach to sensory design outside hospital spaces. The

design guide has made them more aware of the acoustic impacts of a space they are designing, such as altering their choice of materials.

[N]obody ever asks [questions like] “are there loads of beds [...] [or] wheelchairs [...] [or] suitcases or buggies being wheeled across this and would that add to the acoustics of the space?” No-one’s ever asked me [that, and] it’s never crossed my mind. [...] [N]ow I think if nobody’s showing a strong preference either way I think I’d say “well, maybe we should go with the poured [concrete], especially if you’re in a space like in a train station where you’re trying to get really clear announcements”. (Architect Director)

This interviewee hopes to use the design guide to help plan a conference centre, drawing on new reflective tools to create a space that supports networking.

[using] the design guide in that conference environment [...] will tell me something about what [...] good sensory design look[s] like if you are trying to network, do business, run events like conference[s] [...] I’m interested in this overlap of what makes a good networking space [...] when you’re trying to have impromptu chats about business you sometimes want a quiet space [where] you don’t want to be overheard but you [also] don’t want to be too formal. (Architect Director)

This interviewee also used the Sensory Observation cards in the design guide to run a series of workshops for young people at the UK’s Real Estate Investment and Infrastructure Forum (UKREiF), which took place 20-22 May 2025 in Leeds and was attended by 14,000 delegates. 43 participants took part in activities inspired by the project’s Sensory Observation cards. This workshop resulted in lessons about young people’s experiences of conference environments and concrete recommendations for improvements (findings currently under review for publication as a peer-reviewed journal article). Using the design guide to plan the conference prepared the Architect Director for their next project, “giv[ing] me some data that” shows “we’ve really thought about this” and what “good” design looks like.

The interviewee shared that the design guide, and applying it to both healthcare and wider social, educational and workplace settings, has helped them “to be more nuanced and speak to people in a really human way. Clients felt actually there’s a bit of subtlety to this that the guidance won’t pick up, but I think we can”. They noted that the design guide is applicable to different environments because it acts as a “sensory design tool” relevant to a wide range of people, including those who are neurodivergent and those who have an auditory or visual impairment. They learnt that “[u]ltimately it’s about designing better spaces for people [...] that are more human-centred”, which give them “the best chance to recover, recuperate, live their life, learn, and get on with their day” (Architect Director).

## 6. Longer-term change

There is evidence that the design guide has created longer-term changes to Art and Design teams' perceptions of sensory design, and continues to alter design practices across hospital spaces. In written feedback, an Art and Design Development Manager at York and Scarborough Teaching Hospitals NHS Foundation Trust reported that the design guide has left a lasting 'legacy' for the Trust's approach to the senses. This includes 'a shift towards experience-led healthcare environments', 'a replicable model for creative health engagement' and a 'stronger integration of arts into healthcare systems' (Arts manager 1).

Arts manager 1 shared that the impact of the design guide has been most felt in an increased sense of wellbeing among staff and patients. They stated in an interview that a senses-led approach to design "brings [...] stress levels down" and helps participants to "engage". As a result of this, Arts manager 1 reported that a senses-led approach enabled a freer and more targeted discussion about the design of future hospitals.

[The design guide aids people to] think about how hospitals in the future can look, how we can make those little adjustments for the future being tomorrow or the future being today or the future being next week so that you still give people some hope [...]. [T]he senses idea is much more about the spaces that we can all enable. (Arts manager 1)

In written feedback, the York Art and Design Development Manager stated that the design guide's value has been most apparent in comparison to more conventional patient engagement processes. For this contributor, '[a] moment that really captures the difference was during one of the early engagement sessions in the garden space', where participants utilised 'simple creative tools like Play-Doh, drawing and [Artist 2's] "wheel of fortune" prompts'. Arts Manager 1 shared that this led to richer and more insightful feedback.

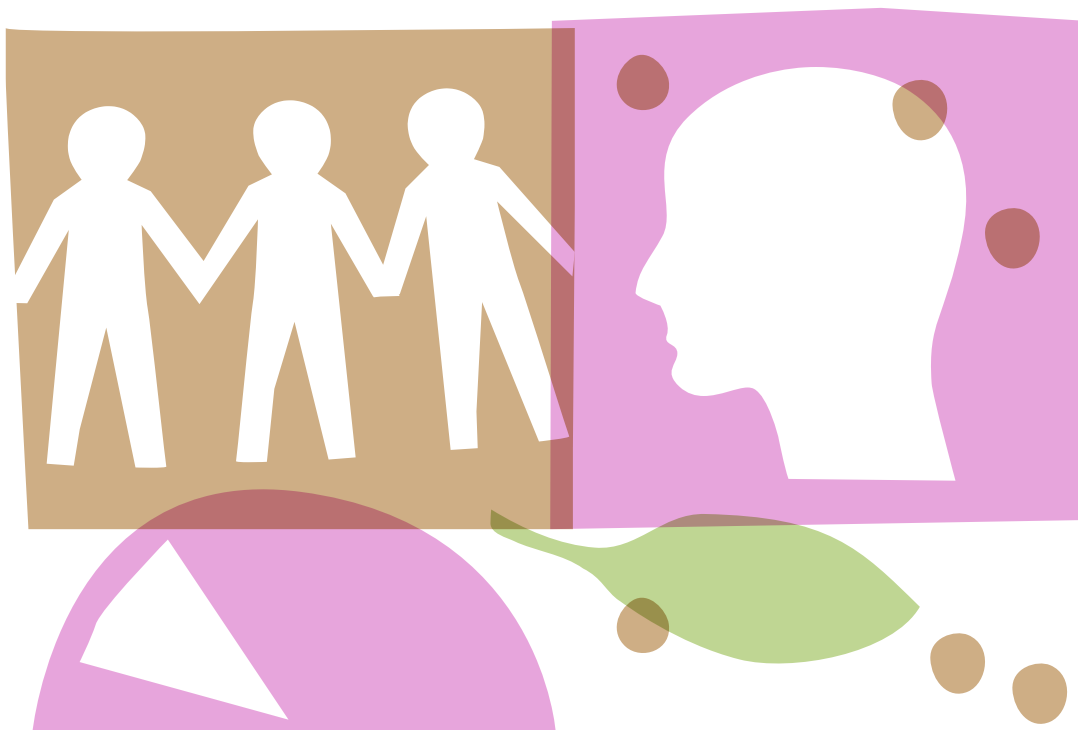
What stood out was how quickly the atmosphere shifted — it felt real, open and genuinely engaged. People weren't just giving opinions; they were thinking together. The creative process helped move the conversation away from individual preferences and towards a shared understanding of what the space needed to feel like. It allowed people to open up, reflect, and consider others' experiences as well as their own. (Arts manager 1)

This contributor reported that a senses-led approach equipped them with new techniques to create collegiality and community in patient engagement processes in the future.

What emerged was a collective sense of responsibility for the space — recognising different needs, but coming together to shape something that felt safe, kind and valued for everyone. That depth of shared thinking simply wouldn't have happened through a more traditional consultation approach. Rather than talking about furniture or layout, they spoke about: fear, uncertainty[,] needing reassurance – then everyone “listened” and then noted each other's feelings. That reframed the entire conversation and directly influenced how those spaces were designed. (Arts manager 1)

The design guide has created lasting impacts on Air Arts (part of Derby & Burton Hospitals Charity). One team member shared in an interview their expectations for long-term changes in the running of Air Arts as a result of engaging with the design guide. They hoped that the reflective tools learnt will lead to wider improvements in the efficiency of the team's work.

I'm really hoping that we'll get to a point where people say, “well, you know, we went for a mural and ended up with a full staff training programme and the musician coming in every week because that was what the problem was. It wasn't that we needed an artwork.” [...] Yeah, so if we get it fully embedded, it will completely change the way that we run things. (Air Arts manager 1)



# Acknowledgments

Thank you to all the people who took the time to give us feedback or participate in research. Thank you also to the co-authors and designers of this guide, and to our collaborators at Architects for Health (AfH) and the National Arts in Hospitals Network (NAHN). Thanks also to the Research IT team at the University of Bristol for the design of online activities. Full details, including authors, can be found here: <https://sensingspaces.rit.bris.ac.uk>.

# Funding

The project was funded by Dr Victoria Bates's UKRI Future Leaders Fellowship [MR/S033793/1] and [MR/X022447/1].



Sensing  
Spaces  
of Healthcare

