Better Hospitals Design Principles: hospital visits

Imperial College Healthcare NHS Trust

September 2022

Contents

About this report

This report presents findings from research carried out to support hospital redevelopment planning at Imperial College Healthcare NHS Trust. The research, conducted by Kaleidoscope Health and Care, was carried out between July and September 2022. The purpose of the research was to co-create with patients, staff and local community members the first in a series of user-centred Better Hospitals Design Principles to be incorporated into the Trust's hospital design brief. Focused on hospital visits, this set of principles sets out what we heard matters most in hospital design to help people get to and receive (or give) the care they need. Following 'chapters' informing more specific areas of design work will follow from early 2023 for the lifetime of the redevelopment of all our sites - from public spaces, specific patient pathways and conditions, digital innovation and workspaces to food, art and accessibility.

This report sets out a straightforward, user-friendly set of design principles that communicate clearly the aspects of hospital visits that matter most to people, to deliver a description of which people's voices had been gathered through the user-engagement to date, and highlight which voices were missing to inform any future engagement.

Acknowledgements

Kaleidoscope Health and Care would like to thank all individuals who contributed their time to share their perspectives, aspirations and ideas around hospital redevelopment. We would particularly like to thank the members of the Trust's steering group who gave their time to inform the design and delivery of this research, and who helped to validate the design principles (Appendix 1 describes the steering group membership). Errors and omissions are the responsibility of the authors alone.

Summary

Imperial College Healthcare NHS Trust ('the Trust') has described the redevelopment of its hospitals as a 'once in a generation opportunity'. This programme of building future hospitals is part of a wider ambition to become the most 'user-focused' organisation in the NHS. To support the redevelopment, the Trust commissioned Kaleidoscope Health and Care to review a range of user-insights and produce a straightforward, user-friendly set of design principles that clearly communicate the aspects of hospital visits that matter most to people.

The design principles developed through this work will be used to support decision making during the Trust's hospital redevelopment programme, including new hospital design and on-going refurbishment and improvements from 2023.

A secondary purpose of this work was to undertake a participant mapping exercise to map the voices captured in the user-engagement on this work to date, compare this against the Trust's communities and to highlight which groups were missing or under-represented. The outputs of the participant mapping can be used to inform any future engagement.

What did we do?

We reviewed a range of sources provided by the Trust[1] as well as analysing some relevant external documents sourced through known networks and independent research. We contacted a select number of experts known by us or recommended to us in this field, to hear their perspectives on the design needs of a new hospital, and to source external data where it was reasonably applicable and relevant. We mapped the specific characteristics of the people whose voices and perspectives were present in the data. We reviewed a total of 68 different data sources in this review phase.

Around 50 themes were identified through the analysis process and these were consolidated to develop a set of design principles for hospital visits. Each design principle is accompanied by a set of 'design considerations' - these are intended to give more specific and practical guidance about how the design principle could be achieved. The principles and design considerations were tested and co-produced through a series of workshops with key stakeholders.

What did we find?

Our analysis showed a strong degree of consistency between the data sources we reviewed. We reached a point of saturation in regard to the themes that arose - this means that each additional source that was analysed corroborated our

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[1] Sources included: meeting notes from local community groups and staff forums, and specific user insight research work the Trust had conducted in relation to this redevelopment programme (including survey data, interview notes, and notes from participative events and focus groups). Please see the reports Bibliography for the full list of resources.

findings. When we compared findings from external sources to the data from the Trust's engagement, we found a high amount of consistency in the themes.

Our participant mapping showed that at least 649 people from a range of different groups have been included in the engagement work to date. The available demographic data and identifiable characteristics of users meant it was difficult to say with confidence which groups had been adequately represented, but we were able to identify some groups who seem to be underrepresented in the work so far, as well as some recommendations for the Trust team to think about for future engagement.

The eight design principles for hospital visits

- **Principle 1:** Our hospitals will promote safe and dignified care, in secure surroundings
- **Principle 2:** Our hospitals will be inclusive and accessible for everyone
- **Principle 3:** Our hospitals will be easy to get into and get around
- **Principle 4:** Our hospitals will be welcoming, calming and comfortable
- **Principle 5:** Our hospital design will support a positive waiting experience
- **Principle 6:** Our hospitals will have protected, comfortable spaces for staff
- **Principle 7:** Our hospitals will reflect our history and support local communities
- **Principle 8:** Our hospitals will be environmentally friendly

The design principles are grounded in a wealth of user perspectives, gathered through work undertaken by the Trust and from external literature sources. Given the consistency between our external literature review, our internal literature review, and the detailed exploration of missing voices, the design principles are both evidence-based and sufficiently representative of most groups of hospital users.

The set of design principles provides a strong foundation on which to proceed with the next stages of this design process. A particular focus of any future engagement should involve, and be tailored to, specific demographics highlighted as underrepresented in the data. These groups are: people whose ethnicity is other than White British; people from different faith communities; people who identify as non-binary or transgender; people with neurodiversities such as autism; and those who have had a stroke and other neurological and long term conditions. This targeted approach would fulfil the need to cover these remaining gaps in perspectives and for the Trust's full range of communities to become involved in, and energised by, the redevelopment process.

Overall, the Trust's engagement and engagement from external sources shows that a high degree of inclusion and representativeness is difficult to achieve. A key lesson for the future is that user-engagement programmes must include a deliberate focus on capturing better data around the people that are involved.

Background

Imperial College Healthcare NHS Trust ('the Trust') has described the redevelopment of its hospitals as a 'once in a generation opportunity' with the redevelopment of its hospital sites key to helping the Trust achieve its vision of 'better health, for life'.

The Trust's current organisational strategy was published July 2019 and in November 2021 the Trust updated its strategy to include a smaller number of priority outcomes for 2021 to 2023. Throughout every iteration of the Trust's strategy the ambition to be more user-led has remained constant, with a priority area for 2021-2023 being "a stronger user focus to everything we do".

The Trust has chosen to role model this commitment to being user-led through the redevelopment process. It has placed emphasis on engaging with its many local communities and critically evaluating the voices represented in the conversation. This report is a milestone in that journey, supporting the Trust in the next phase of engagement, and ensuring that users have shaped the design of the new St. Mary's Hospital in Paddington and the planned refurbishments and improvements at Charing Cross and Hammersmith hospitals right from the start.

All three of the Trust's main hospital sites are part of the Government's New Hospital Programme which will deliver 40 new hospitals by 2030.

Project aims and methods

The purpose of this project was to use a range of user-insights to produce a straightforward, user-friendly set of design principles that clearly communicate the aspects of hospital visits that matter most to people. These design principles can also be used to guide decision making during the Trust's hospital redevelopment programme, including new hospital design and on-going refurbishment and improvements from 2023.

Working in close collaboration with the Trust's Healthcare Planning team, who are responsible for creating the hospital design brief, the research team set out to review what perspectives were already available through the user-engagement work done by the Trust to-date, to re-analyse these data and identify a number of recurring themes that would then inform a set of design principles[2].

We also sought to map the specific characteristics of the people whose voices and perspectives were present in the data. This activity provided deeper insight as to which voices are being heard and which are missing in the data we have available. We sought to use external data sources to address any gaps in the internal literature, to include perspectives from outside the Trust area and communities, where the external data was reasonably applicable and relevant.

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[2] Appendix 1 describes the Trust's Healthcare Planning team and the research team.

What is a design principle? What will the Trust use the principles for?

This set of design principles is intended to guide and reinforce user-centred decision-making in designing the Trust's hospitals of the future. These principles describe a set of priorities that will be privileged above other wants and needs when choices need to be made during the design process. The principles reflect the experience that the Trust's users want the Trust's hospitals to facilitate and are grounded in listening to the perspectives of patients, staff and local communities.

The Better Hospitals Design Principles described in this report are focused entirely on hospital visits - what matters most in hospital design to help people get to and receive (or give) the care they need. This first set of design principles will be incorporated into the Trust's hospital design brief. Future 'chapters' or 'sets' of principles will follow this work, informing more specific areas of design (such as public spaces; specific patient pathways and conditions; digital innovation; workspaces; food; art and accessibility) from early 2023 for the lifetime of the redevelopment of all the Trust's sites.

Data collection

This project had two stages of data collection: a background document review of internal sources provided by the Trust, and an expanded review of relevant external documents sourced through known networks and independent research.

Document review

The Trust shared a total of 43 internal sources of user-insights for analysis. These included meeting notes from local community groups and staff forums, and specific user insight research work the Trust had conducted in relation to this redevelopment programme (see Bibliography for the full list of resources). A key piece of evidence reviewed in this research project includes previous engagement work commissioned by the Trust carried out by healthcare research specialists, HKS (referenced throughout this report). This engagement consisted of in-depth, semi-structured interviews with 8 patients and family members, 9 staff members and one focus group with 17 staff members.

Outreach to experts

To supplement the internal literature, we contacted a select number of experts known by us or recommended to us in this field, to hear their perspectives on the design needs of a new hospital. We reached out to our network and contacted people with expertise in working with patients and people who have visited hospitals. Some of these experts recommended additional contacts for us to explore and suggested relevant external literature to inform our review (Appendix 2). We spoke with a number of experts including National Voices (a coalition of health and social care charities in the UK); The King's Fund (an independent charity working to improve health and care in England through informing health policy and practice); Salus Global (knowledge sharing network for inspiring and

sustainable built environment projects that support health, wellbeing and quality of life); and the New Hospital Programme (Department of Health and Social Care). Many of these experts offered their support for future engagement in the design principles and the design process.

Analysis

We reviewed all information from the internal documents, other data sources we had found independently, and resources recommended to us by external experts. As we reviewed the documents, individual points of evidence which related to hospital visits were extracted from the documents. The literature produced 775 independent rows of evidence related to hospital visits. A thematic analysis was then conducted which involved tagging each point of evidence from the documents with a broad theme which that particular point of evidence related to e.g. accessibility (Appendix 3). These broad themes covered specific design considerations for hospital visits. Once all documents and sources had been reviewed, the hospital visits themes we discovered in our analysis were reviewed, harmonised and consolidated where appropriate.

A total of 48 themes were identified in this thematic analysis process, which were grouped and consolidated to develop a set of initial draft design principles for hospital visits. Underneath our set of initial design principles, we collated design considerations, which were specific examples of how the design principle could be achieved through the design of hospital visits.

There were several overlapping themes that fed into multiple principles, as well as themes that were unique to a specific principle. This led to a small amount of repetition of design considerations across the set, however, we (the research team) minimised this where possible. These draft design principles for hospital visits were then refined to a set of eight draft principles through a data validation process (see below).

Our analysis showed a strong degree of consistency between the data sources we reviewed. We reached a point of saturation in regards to the themes that arose, meaning that each additional source that was analysed corroborated our findings. There was a high amount of consistency between internal documents and external sources that we reviewed. The greatest consistency in support between our external literature and design principles was found for principle 3: Our hospitals will be easy to get into and get around; principle 4: Our hospitals will be welcoming, calming and comfortable; and principle 1: Our hospitals will promote safe and dignified care in secure surroundings. The limitations of this research are described in Appendix 4.

Table 1 presents our approach to ranking the strength of evidence.

Table 1: Strength of evidence

Rank	Justification
1	The finding is supported by multiple types of data sources of generally strong quality (good triangulation).
2	The finding is supported by multiple data sources of lesser quality, or the finding is supported by fewer data sources of higher quality (moderately good triangulation).
3	The finding is supported by few data sources of lesser quality (limited triangulation).
4	The finding is supported by very limited evidence (single source) or by incomplete or unreliable evidence. These findings may be preliminary or emergent and may need to be followed up at the end of programme evaluation.

Participant mapping

To understand the range of voices captured in the literature and the representativeness of the draft design principles, we assessed each of the 43 internal data sources against a set of demographic categories. We used the seven categories stated in the Imperial College Healthcare NHS Trust's Annual Patient Equality and Diversity Report 2021/2022: ethnicity; age; biological sex; gender identity; disability; religion and sexual orientation.

We assessed whether the perspectives in each data source were explicitly voiced by people with defined characteristics, or implicitly capturing the perspectives of a specific group but were not clearly reported (Appendix 5).

The review of internal data sources captured the views of 375 members of staff; 140 patients, carers and friends of patients; and 134 local community members.

These data captured the experiences of a mix of genders, ethnic backgrounds, sexualities and religions; staff, patients or carers supporting those with a disability, learning disability, chronic conditions, dementia, physical impairment, mobility impairment, long-term health conditions, neurological conditions, autism, ADHD or a sensory impairment. However, demographic reporting across internal literature was limited, and so it is difficult to determine an exact number of people who were engaged through the process and how well each demographic was represented (Appendix 6).

We analysed data from relevant outside sources to understand the representativeness of other literature and to fill in missing gaps identified through our review of internal sources. In the external data we found greater representation of the experiences and needs of those with dementia; with sensory impairments; young people; and older people within a hospital environment. Gaps in representation still remain for people whose ethnicity is other than White British; people whose religions are Christian, Hindu, Jewish, Muslim and Other religions; people who identify as non-binary or transgender; and those with autism, those who have had a stroke and other neurological and long-term conditions.

There are numerous perspectives which are relevant to this analysis, but the literature lacked explicit reporting of characteristics. We have assumed some implicit representation of certain demographic characteristics. For example, our analysis revealed the importance of age-appropriate spaces (age); multifaith facilities (religion); easy and inclusive navigation (disability, age, ethnicity); and the provision of quiet and low-sensory spaces (disability). It is therefore likely that the draft design principles cover the needs of these groups, despite the data sources not explicitly reporting that these groups were directly consulted, and their perspectives included in the reporting.

Validation of the design principles

Two workshops were held in August and September 2022, to describe the research findings and to involve a range of ICHT stakeholders in the development of the design principles. Through these workshops we were able to test the findings and the main themes more thoroughly and gather more specific details of suitable considerations to accompany each design principle.

Our original analysis produced nine draft principles. Through the workshops and iterative analysis we harmonised these principles into eight final design principles (Figure 1).

Figure 1 Mapping of primary themes to the eight Design Principles
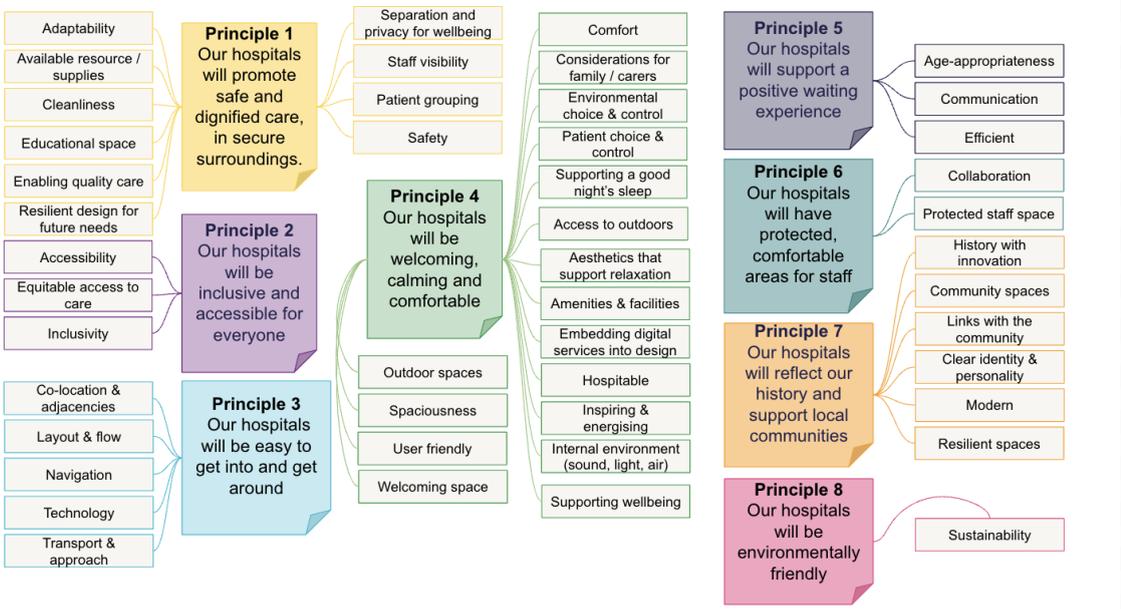
Better Hospitals Design Principles: hospital visits

Introduction to the design principles

This set of design principles is grounded in the evidence that was reviewed and has been tested by a range of stakeholders.

There are a total of eight design principles that are equally important and mutually reinforcing. In this section we outline each principle and its set of specific practical actions - or 'design considerations' - indicating the aspirational actions for how the principle could be delivered through hospital design. Design considerations that are commonly cited within the data, and could be classified as 'priority' considerations are bolded. The delivery of these considerations will be measured by the Trust throughout the design process.
Accompanying each design principle is a description of the relevant evidence, along with an explanation of the strength of evidence, and (where possible) illustrative quotes from patients, staff and community members.

At the start of each descriptive section, we have included the list of the 'themes' we discovered in our analysis that were associated with each design principle. In this context, a 'theme' refers to a commonly occurring design consideration. These design considerations provide specific examples of what is required to achieve the design principle. For example, for Principle 1: Our hospitals will promote safe and dignified care in secure surroundings, an associated 'theme' is 'staff visibility', and an associated design consideration is 'There will be direct sightlines from staff workstations to patient areas'. Each theme is explored in detail throughout this report.

- **Principle 1:** Our hospitals will promote safe and dignified care, in secure surroundings
- **Principle 2:** Our hospitals will be inclusive and accessible for everyone
- **Principle 3:** Our hospitals will be easy to get into and get around
- **Principle 4:** Our hospitals will be welcoming, calming and comfortable
- **Principle 5:** Our hospital design will support a positive waiting experience
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- **Principle 7:** Our hospitals will reflect our history and support local communities
- **Principle 8:** Our hospitals will be environmentally friendly

Principle 1: Our hospitals will promote safe and dignified care in secure surroundings

Patients will be confident they will receive high quality, safe care and will be treated with dignity. Clinical areas will strike a balance between privacy for patients and visibility for staff.

Design considerations

How could we achieve this?[3]

- **All care spaces will aim to meet or exceed statutory size guidance to ensure that care can be comfortably performed, that there is enough space to accommodate equipment in patient rooms, and operating rooms will be spacious enough to accommodate all necessary equipment**
- **Our hospitals will support privacy. This will include providing private spaces for consultations, conversations between staff and patients and their care partners or families, patient and family education and training, and counselling**
- **Wards and rooms will be multi-use, adaptable and have the ability to be flexibly reconfigured, to ensure our hospitals are resilient and adaptable for future needs**
- **There will be dedicated lifts for staff and transporting patients that will be large enough to accommodate a bariatric patient bed**
- **Corridors will be wide enough for easy transport of trolleys and carts**
- **There will be direct sightlines from staff workstations to patient areas**
- **There will be sinks and hygiene facilities accessible to all patients**
- **All patient, staff and visitor spaces will be clean and well-maintained and all surface finishes will be easy to clean**
- Aesthetics and furnishings will be tailored to the needs of the ward
- Furniture specifically designed for healthcare will be used in hospital spaces
- There will be enough space at reception desks to accommodate receptionists and they will be wheelchair accessible
- Where possible, care-related furniture, such as patient examination tables, will be adjustable for height and other parameters
- There will be ceiling mounted and/or mobile hoists in patient care areas to support staff lifting patients
- Our hospitals will use digital systems to manage workloads, flow and demand, such as centralised booking systems, self-scheduling, remote advice and real time results.
- Our hospitals will use technology that helps with remote monitoring and enables video conferencing for both staff and patients
- Our hospitals will be designed with additional infection control provisions such as enabling departments to be separated into green/red zones or clean/dirty zones in anticipation of future disease outbreak

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[3] Design considerations that are commonly cited within the data, and could be classified as 'priority' considerations are bolded

> **Strength of evidence: Rank 1**
>
> Principle 1 is supported by multiple types of data sources of generally strong quality. Themes relating to this principle were corroborated by high levels of consistency within internal and external data sources.

Principle 1 context

Below is a list of the primary themes that fed into the development of this principle.

- separation for privacy and wellbeing
- staff visibility
- enabling quality care
- adaptability
- resilient design for the future
- cleanliness

Within all of the themes associated with this design principle, safety was a core repeated element. The main themes are described in more detail in this section.

Separation for privacy and wellbeing

Separation for privacy and wellbeing was a core theme contributing to the development of this principle. Considerations for the privacy of patients and visitors included: ample spaces within the hospital for confidential or sensitive conversations, and measures that offer privacy whilst receiving treatment (substantial curtains, smaller wards and more private rooms for example). Some evidence also highlighted users' requirements for privacy in relation to end of life care.

> "*If I was a patient, I wouldn't be happy because there may be a patient in another bay, talking about private things, and they are divided by a curtain from the other patient listening to him […] I wouldn't feel comfortable if I were a patient.*" **HKS, Staff Interview**

Privacy measures for staff included: private rooms and breakout areas for meetings, private changing facilities, and private spaces for staff to use when delivering difficult or distressing news to patients or for discussions relating to safeguarding.

> "*Very few wards have quiet space – somewhere where you can shut the door. If someone doesn't feel comfortable (private) it can make conversations worse. We need to be away from the bedside, but not too far away. The chapel can be used, but that's not for everyone*". **Wellbeing data capture series (Spiritual, Mental and Emotional Wellbeing), Staff Interview**

Staff visibility

Staff visibility was a unique theme contributing to the development of this principle. A specific consideration is ensuring direct sightlines from workstations to patient areas. The evidence demonstrates that these measures have positive impacts for staff and patients. Staff mentioned that direct line of sight from workstations (often decentralised nursing stations) into wards assists them with viewing patients, responding to issues quickly, and improves productivity. Patients reported that a view of staff helped with feelings of anxiety, creating an environment that felt safe and under control.

> "*I felt safer looking into the ward instead of outside. I had a good view of the staff if I needed help [...] I could communicate, I could wave. I had my buzzer and the response I got was quick*". **HKS, Patient Interview**

Enabling quality care

Evidence for this theme focused on prioritising resources that support quality, dignified care for all conditions and all patient groups. This included care-related furniture such as patient examination tables (adjustable for height and other parameters), and ceiling mounted and/or mobile hoists in patient care areas to support staff lifting patients. This also included design considerations for aesthetics and furnishings; tailored to the needs of specific patient groups, such as child friendly decor in paediatric wards, and the use of furniture specifically designed for healthcare environments.

Adequate space was also paramount to providing and receiving dignified care. This included ensuring corridors were wide enough to accommodate beds and other hospital traffic, enough accessible space at reception desks to accommodate two receptionists (with enough space for wheelchairs), and large enough lifts to accommodate medical equipment such as bariatric beds.

Adaptable, resilient spaces

Environments that are 'adaptable', 'resilient' and 'enable quality care' were other key themes feeding into this principle. Evidence described the need for spaces to be adaptable to ensure they stay relevant and are designed for flexibility and adaptability in order to navigate an unforeseen future with agility. Adaptability was also referenced in relation to designing flexible spaces that could meet multiple care needs and treat a wide range of conditions. Another specific consideration on adaptable spaces included space for minor procedures in order to avoid them using operating theatres.

> "*People aren't just "one thing" that can be put in one place. I wear numerous different hats throughout the day and the people I need to work with/bump into are different from one hour to the next (my teams more so). The current rigidity doesn't support that*". **Imperial College Healthcare Trust, Clinical Thinking Group**

Evidence on 'resilient design' (in relation to safe, secure and dignified care) included measures to ensure spaces stay relevant (as mentioned above). Another key area for resilient design frequently mentioned within the evidence were measures to support infection control, particularly in reference to future proofing for further pandemics in the wake of Covid-19 (the ability to separate flows for example).

Cleanliness

Linked to infection control more generally, 'cleanliness' was a key theme in promoting safe, secure and dignified care. Internal evidence made reference to the opportunity to transform spaces that are 'worn and failing' to 'durable and cleanable surfaces and finishes that evoke positive first impressions'. Specific considerations included hand washing and hygiene stations, clean, accessible and wipeable finishes, and measures to improve waste management.

> *"If someone goes to a dirty Emergency Department, it doesn't make them feel good. And gives them a feeling that if you can't look after the environment, how will the staff care for them? It's not true but that's how people see it. We need to make sure we address that."* **HKS, Staff Interview**

Impact of digital technology on safe, secure and dignified care

Digital technologies' impact on promoting safe, secure and dignified care was often cited in reference to how technology could support staff. This included technology to help with remote monitoring, technology to enable video conferencing for both staff and patients, and the use of digital systems to manage workloads, flow and demand, such as centralised booking systems, self scheduling, remote advice and real time results (also benefiting patients).

Principle 2: Our hospitals will be inclusive and accessible for everyone

Our hospitals will be ruthlessly inclusive. Designed to be used by as many people as possible, regardless of age, gender, disability, race, language, digital exclusion and other protected characteristics.

Design considerations

How could we achieve this?[4]

- **The approach to our hospitals will be accessible with level-access and no cobbled paving**
- **Inclusive, clear and easy to understand language will be used throughout our hospitals and information will be provided in the different languages of our local communities**
- **Where possible, spaces within our hospitals will be fully accessible for wheelchairs, mobility scooters and pushchairs**
- **There will be low-sensory, low-stimuli, quiet spaces in busy and highly populated areas, such as waiting rooms, cafes and canteens, the emergency department, and ward spaces, to support people with autism, learning disabilities, ADHD, anxiety or other sensory or invisible conditions**
- **Decor and colour schemes will support specific conditions, specific to care spaces and care groups. For example, using non vibrant decor and literal artwork for people with sensory and neurological conditions and using the correct contrast colours to aid people who are visually impaired**
- **Patients in waiting areas will be called using audio to support people who are visually impaired, and will be called visually with screens and buzzers (which light up) to support people who are hearing impaired**
- **There will be enough accessible toilets as well as changing places provision**
- **Pictures and symbols will be used on signage to ensure signs are easy to understand**
- **Long corridors will be avoided where possible, but where they do occur, they will be furnished with seats to rest and grab rails to aid mobility**
- **Doors within corridors, entrances and exits will be 'hold-open' or automatic**
- **The floors within our hospitals will be level, have no steep slopes and no shiny floors, and where possible, steps will be replaced with a gentle incline between floors**
- **There will be enough child and wheelchair friendly storage spaces close to hospital entrances**
- **There will be enough availability of wheelchairs around our hospitals**
- **There will be appropriate interior and exterior lighting to aid**

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[4] Design considerations that are commonly cited within the data, and could be classified as 'priority' considerations are bolded

> **individuals with visual impairments and to ensure safety**
> - **To ensure no one is digitally excluded from our hospitals, non-digital options will be available where possible e.g. the option to speak to a volunteer or member of staff rather than using digital technology at reception**

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Strength of evidence: Rank 1

Principe 2 is supported by multiple types of data sources of generally strong quality. Themes relating to this principle were corroborated by high levels of consistency within internal and external data sources.

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Principle 2 context

The primary themes that fed into the development of this principle included:
- inclusivity
- accessibility
- layout, co-location, and adjacent services
- technology as an enabler to reduce stress

These themes are explored in more detail below.

Inclusivity and accessibility

'Inclusivity' and 'Accessibility' were both dominant themes that fed into the development of this principle; running across all internal and external evidence. Designing inclusive environments that enable diverse and vulnerable individuals to feel valued, accepted, and respected during their hospital experience is paramount, references to 'ruthless inclusivity' when designing hospital spaces came up frequently within existing internal evidence and are supported across the external evidence reviewed.

It is clear from the evidence that inclusivity and accessibility are examples of principles that should run through everything the Trust considers. The 'Commision for Architecture and the Built Environment' states in their 'Principles of Inclusive Design': 'Good design is inclusive design. Design should always be judged by whether or not it achieves an inclusive environment. Design which does not do this is not good enough'.

There were many specific considerations for inclusive and accessible design within both the internal and external evidence. These are mostly covered in the design considerations above, but are explored with additional detail below.

People made suggestions for inclusive and accessible approaches to the hospital site, including: level access, no cobbled paving, appropriate exterior lighting and enough child and wheelchair friendly parking spaces close to hospital entrances.

Within the building itself, our evidence described that there should be no shiny floors or steep slopes, and where possible steps would be replaced with gentle inclines. Participants expressed that there should be enough fully accessible,

wheelchair friendly spaces for all users, large enough spaces to accommodate mobility aids (including in toilets), and automatic doors where possible (particularly at entrances).

Inclusive measures are needed for users whose need may not necessarily be visible or obvious such as those with autism, learning disabilities, dementia, ADHD, anxiety or other sensory conditions. Suggested considerations were adequate and accessible low-sensory, quiet spaces in busy areas throughout the hospital, and considerations for decor and artwork to mitigate the impact of the environment for users with certain sensory and neurological conditions.

> *"I've chosen to carry an autism alert card. If I show that, I want to have confidence that staff would know what to do. But I don't have the confidence at the moment [...] If I show that card, they need to understand that I might be showing it because I can't speak at the moment. I'd want them to reduce the language they use to bare minimum, not to touch me at that moment, and offer a quiet space."* **HKS, Staff Interview**

In regard to other facilities that support inclusivity and accessibility, an adequate number of accessible toilets and changing places were often cited within the evidence. Other specific resources included the availability of patient hoists. Inclusive facilities related to cultural inclusivity and accessibility included the availability of multi-faith prayer spaces, and food outlets options that consider and are representative of different diets (such as halal, kosher, gluten free, lactose free, vegan) this is explored in more detail in principle 7.

Layout and navigation

Close proximity of relevant departments and services (as explored in principle 3) were also mentioned in relation to accessibility. This largely involved avoiding unnecessarily long patient journeys. As stated in the above design considerations, where long corridors cannot be avoided they should be furnished with seats to rest and grab rails to aid mobility.

> "*Ensure that a patient does not have to be moved or walk a considerable distance between consultants or treatments.*" **Kaleidoscope Health and Care and the Nuffield Trust report, Patient and community member**

> "*Long corridor, complex layout of clinic. Too far to walk with walking aid; not enough space. I am diabetic, but was not offered any food – I am in a wheelchair and was not able to access the toilet or get any food.*" **What's it like being in a hospital waiting room? People's views in Birmingham, Patient participant**

Several references were made within internal and external evidence to ensure that moving around the hospital, including navigation, was inclusive for all users. This included simple, easy to read signage for users with learning disabilities, better placement, colour-coding or electronic signs, appropriate interior lighting, correct colour contrasts to aid people who are visually impaired, and multi-language signage that represented the diversity of the community.

"*Meet the needs of users, [so that hospitals] can be navigated by all regardless of disability, personalised approaches to alleviate limitations such as buzzer calls or mobile calling systems for blind/deaf, automatic doors, clear signage, good front of house customer service.*"
Kaleidoscope Health and Care and the Nuffield Trust report, Patient, staff and community member

Technology as an enabler to reduce stress

Making announcements to users (about appointments for example) were also cited in existing evidence around inclusivity. This can be done through the use of audio descriptions for the visually impaired, and using screens, buzzers (which light up) and (more prevalent in the external evidence) the provision of an interpreter to assist patients with hearing impairments or those for whom English is not their first language. These measures were seen as key to minimising waiting anxiety for these patients.

Principle 3: Our hospitals will be easy to get into and get around

Our hospitals will have clear entrances and exits, clear and simple signage and a logical layout to ensure they are easy to get into and get around.

Design considerations

How could we achieve this?[5]
- **Our hospitals will connect well to local transport, with easy to find, well-lit and clearly signed entrances and routes from public transport to our hospitals**
- **At hospital entrances, reception staff and volunteers will be visible and on hand to help with any questions and navigation**
- **There will be features to support orientation and ease decision-making when navigating around our hospitals such as clocks, artwork and easy to identify landmarks. Colour coding of hospital areas will be used to support navigation**
- **Linked services, departments and facilities will be located close to each other, to minimise the distance and time people spend moving around our hospitals**
- **There will be clear, accessible, inclusive, standardised, and easy to understand signage to help everyone find their way around our hospitals**
- **There will be enough spacious lifts to enable everyone to move between floors of our hospitals easily, without waiting for long periods of time**
- Large, clearly designed maps will be displayed at various locations, with printed and digital versions also available
- Technology will integrate with patients' phones, such as to assist with wayfinding, patient location, and notifications about appointment times
- Drop off and parking points for taxis and disabled parking will be close to hospital entrances and site-appropriate

Strength of evidence: Rank 1

Principe 3 is supported by multiple types of data sources of generally strong quality. Themes relating to principle 4 were corroborated by high levels of consistency within internal and external data sources.

Principle 3 context

The primary themes that fed into the development of Principle 3 included:
- transport and approach
- spaces that are navigable
- layout and flow

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[5] Design considerations that are commonly cited within the data, and could be classified as 'priority' considerations are bolded

- close proximity of relevant departments and services

These themes are explored in more detail below.

Transport and Approach

Specific considerations for 'transport and approach' included the need for well connected, accessible and affordable public transport in close proximity to hospital sites. People mentioned issues relating to traffic near to the St Mary's hospital entrance; leading to pollution in the surrounding area and a concern for safety due to a lack of pedestrian crossings. Users participating in this previous research suggested well designed, dedicated drop-off and collection points, easy access for emergency vehicles and clearly marked, safe crossing zones for pedestrians. People also commented on the importance of approaching the hospital on foot. This included the need for well lit pathways, which are accessible for all users (this is explained in more detail within Principle 2).

> *"It was really hard to get a taxi to drive in to where I would like to be picked up - I had to leave by going out onto the street, and it was raining [...] and I was ill".* **Kaleidoscope Health and Care and the Nuffield Trust report, Patient and community member**

Parking for those who needed to travel in private vehicles was raised as an issue by people in both internal and external data sources. This included a general lack of parking space for all users, the cost of parking, the need for better information or signage on where to go when arriving at the hospital parking site, and issues with the distance between parking sites and the hospital buildings. Potential solutions to help specific groups were suggested, such as closer, designated A&E parking, as well as designated child and wheelchair friendly parking.

Group discussion around this theme raised tensions specifically relating to parking and hospital design. These tensions included the degree to which design teams have control over space for onsite parking, versus the role of local authorities. Other tensions included barriers to parking that were site specific, for example the difficulty of accessing the Hammersmith site without arriving by car (particularly for users with mobility issues), compared to the difficulty of arriving by car to the Paddington site, which has very good public transport links.

Spaces that are navigable

Easily navigable spaces was another key theme of this principle.[6] A common design consideration within this theme was the need for clear, accessible, inclusive, standardised, and easy to understand signage. This was in response to evidence from both internal and external sources that cited a lack of appropriate signage, or inadequate signage across multiple hospital sites. Specific improvements were suggested: using larger text, using associated images where possible, and the need for signs to be in common languages spoken amongst the Trust's local communities. Strategies beyond signage to assist with wayfinding included: using colour coding for departments (supported by colours on signs and

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[6] Overall, wayfinding was cited as a key driver of hospital experience, with evidence suggesting that wayfinding strategies would significantly reduce users' stress and anxiety.

maps) to support the visual identity of each hospital space, progressive wayfinding through the hospital, and well designed maps and guides.

> *"You don't know where you are going. You walk through the door and it's complete sensory overload [...]. When you ask someone where this is and they tell you where to go, you completely forget and get confused."*; **HKS, Patient Interview**

Using digital technology to aid navigation and wayfinding also emerged from the existing internal evidence, and was supported by external data sources. This included: measures to support and encourage service users and visitors to familiarise themselves with the surrounding area (both routes and facilities), supported by measures such as free downloadable apps which included maps, or geo-location services on users' phones.

Close proximity of relevant departments and services

Close proximity of relevant departments and services was a strong theme discovered within this principle. People described how current ICHT sites were comparable to a 'rabbit warren', with physically disconnected buildings that created a confusing layout. Some evidence referenced the impact of the pandemic, citing that being 'pandemic proof' meant using a one-way system; meaning an increase in walking distance between treatments/tests.

> *"Spaces should flow naturally into each other making it obvious to patients where and how they are expected to move. The building internally and externally should express competence and calmness."*; **Kaleidoscope Health and Care and the Nuffield Trust report, Patient and Community Member**

Close proximity of relevant departments and services was a commonly-cited factor in improving 'layout and flow'. This involved recognising who or which departments worked together, and locating them in close physical proximity, leading to benefits for patients on common care pathways and the staff working within these departments. People suggested that the close proximity of relevant departments and services would lead to reduced travel time between sites, allowing for more available time for consultation / treatment between patients and staff. Such a logical and proximal layout was also highlighted in relation to reducing the need for patient movement, particularly long journeys, thus increasing safety for some patient groups (this is described in Principle 2). The close proximity of frequently connected departments and teams was also highlighted as important for providing opportunities for staff collaboration; this is described in Principle 6.

Principle 4: Our hospitals will be welcoming, calming and comfortable[7]

Our hospitals will support comfort, rest, and a good night's sleep. Patients will feel welcome and have control over their own environment.

Design considerations

How could we achieve this?[8]
- **Sleep and rest will be protected. The impact of disruptive noises on patients and staff, and particularly on their sleep, will be minimised by noise-reducing design**
- **To create a welcoming environment, our hospitals will be spacious, bright and filled with natural light and fresh air where possible, particularly in areas where people gather such as waiting areas, rest and recovery areas, entrances and reception areas.**
- **Lighting and temperature will be adjustable by staff and patients within individual patient rooms, wards and staff spaces**
- **There will be mostly single-patient rooms with ensuites and enough space to accommodate family, carers and additional members of the care team**
- **There will be features throughout our hospitals to help relaxation and wellbeing such as the use of calming colours for furnishings and decor; the availability of views; and quiet spaces for reflection, meditation, rest and recovery away from patient areas.**
- **Patients will be able to personalise the space in their rooms, for example, by adding pictures and personal items**
- **Patients will have access to entertainment and streaming services in their rooms, with technology to connect with their families and loved ones through virtual visits**
- **Our hospitals will have facilities for patients' family and carers to stay at their bedside and overnight**
- **Our hospitals will have spaces for patient, family and carers education and training**
- **There will be easily accessible indoor and outdoor green space for staff, patients, and visitors**
- **There will be useful amenities such as cash points, shops and stalls selling gifts, drinks and healthy affordable food**
- **There will be spiritual and multi-faith spaces for patients, staff, visitors and the local community**
- There will be comfortable communal areas for patients and visitors to meet and socialise
- There will be ample well-maintained toilets available for use in all locations, particularly near hospital entrances and exits
- Healthy foods which meet dietary needs will be available on wards and throughout our hospital

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[7] Also see theme of 'modern', in Principle 7, for details of how to create a welcoming environment
[8] Design considerations that are commonly cited within the data, and could be classified as 'priority' considerations are bolded

- Our hospitals will be free of visual clutter
- Strong Wi-Fi will be available throughout our hospitals for all users
- Our hospitals will have enough accessible charging sockets or charging stations for all users
- There will be space for wellness facilities such as showers, spaces for exercise, an indoor garden, seating areas and places for patients and visitors to socialise outside of the ward
- High performing filters will be used to enhance indoor air quality

Strength of evidence: Rank 1

Principe 4 is supported by multiple types of data sources of generally strong quality. Themes relating to principle 1 were corroborated by high levels of consistency within internal and external data sources.

Principle 4 context

The primary themes that fed into the development of this principle included:
- comfort and sleep
- patient choice and environmental control
- internal environment (sound, light, heat and air)
- considerations for families and carers
- access to outdoor spaces
- aesthetics that support relaxation
- spaciousness
- amenities and facilities

These themes are explored in more detail below.

Comfort and sleep

A key theme in enabling users' comfort was 'supporting a good night's sleep'. This included measures to reduce noise in overnight patient areas, comfortable beds, supplies that help with sleeping such as eye masks and ear plugs, and measures to control lighting and exposure to natural light to support patients' circadian rhythm.

> *"The first few nights were very noisy in the ward! I could not sleep in the ward. It's really important after being through an operation to get sleep. I kept getting woken up by another patient around the corner…the curtains between patients make it difficult to reduce noise. Doors into the ward were left open, and in my view this should have been shut at night. I could hear noise going on at the duty nurses' desk, the phone, two nurses, and in front were the double doors going to the ward…A lot of patients say that lack of sleep makes you weak and on the flip side I get my sleep and I feel strong and better immediately."* **HKS, Patient interview**

Hospital design was noted by several people to be an opportunity to transform spaces which are chaotic, busy and exhaustive, to spaces that are peaceful, calming and restorative.

> *"Do you want it to be like a hospital or would you want to rest, recuperate and have a standard of care that's calming, soothing, stress free and completely focus on nothing but sleeping and recovering?"* **HKS, Workshop 1, Patient participant**

Patient choice and environmental control

'Environment and patient choice and control' was another key theme feeding into this principle. Evidence referenced the opportunity to transform spaces from being standardised to an individualised clinical experience that allows patients control over their ambient environment. Specific actions included control over the user's environment, such as changes to lighting in staff workspaces and patient areas, the ability to open windows (where safe to do so such as in staff workspaces), the ability to control the temperature of rooms, and features that allow a user to reduce noise. Control over entertainment in patient rooms was also referenced, such as access to television, streaming services and music.

> *"I sat in discomfort at times due to the temperature of the ward, lighting conditions, and noise levels. After asking the staff, they found me some earplugs, eye masks etc. Staff had to go to another department to get these things. Sleep deprivation was an issue until I got these things. I slept well once I had them. If we focussed on sleep more, that would be great,"* **HKS, Workshop 1, Patient participant**

People also referred to the impact of personalisation opportunities for comfort levels and wellbeing.

> *"I kept photos of my husband and my mother; they were important. My mother died in 1992. And during that recovery time, I have never wanted her more. It was very regressive. The photo was so important. Four and a half weeks is a long time."* **HKS, Patient interview**

Patient choice and control was also described as having an empowering effect on hospital users, notably; enabling agency and control over things that matter to the user, reducing the burden on staff and reducing feelings of guilt amongst patients.

> *"If there is a way to empower yourself, where you don't see yourself as a burden to the system, that would be great."* **HKS, Workshop 1, Patient participant**

> *"[staff] are not there to draw your curtains and turn lights off...There is a potential to reduce the burden on staff considerably. There is potential to self-serve and empower."* **HKS, Workshop 1, Patient participant**

Internal environment (sound, light, heat and air)

Noise was a particular theme within the data we reviewed. People suggested that the hospital environment can be distracting, distressing and affect sleep quality.

Noise reducing and insulating design measures, such as sound-absorbing acoustic tiles and finishes and reduced alarm sounds, were suggested to minimise noise and its impact on people throughout the hospital. To ensure inclusivity, low-noise options for common hospital features were suggested e.g. quiet waiting spaces and paper towels rather than only hand dryers in toilets. Regarding the suggestion of paper towels, we recognise the importance of balancing such suggestions with net zero targets, as paper towels have a larger carbon footprint than hand dryers.

> *"Noise is a problem across the board – banging doors, crashing, distracting and distressing for people"* **HKS, Staff Interview**

> *"I think St. Mary's had only hand dryers in the washrooms. And we can only need paper towels, because the noise of the hand dryers can be difficult and painful. [...] Typically, in waiting rooms you'll have a radio or TV playing. [...] just another noise for autistic that you cannot filter out, making my experience worse."* **HKS, Staff Interview**

Lighting and temperature were further strong themes within the data. Plenty of natural light as well as the ability to control lighting and temperature in all areas of the hospital were seen as very important for patients and staff wellbeing.

> *"From children to adults with complex needs, you should have lights that you could dim, have control over light, or a sensory room, which is also your bedroom, and we can do therapeutic stuff there."* **HKS, Patient Interview**

Ventilation and air quality were also deemed to be essential from the viewpoints of staff and patients. Air filters were also mentioned to reduce the spread of infection.

Considerations for families and carers

The role that family, visitors and carers play in improving the comfort levels of hospital users was repeated across sources that fed into the development of this principle and the associated design considerations. People described the opportunity to transform spaces that are impractical and inadequate for carers and families, to appropriate and soothing spaces that effectively engage care partners as vital members of the extended care team; using physical design to integrate the family into the care process.

A key design consideration for supporting family members and carers was ensuring enough space for these people. This included: space and facilities for family and carers to stay overnight, enough space to comfortably accommodate visitors at a patient's bedside, spaces that support families and carers relaxation away from patient areas (whilst staying close to where the patient is staying), and comfortable spaces for families and carers to wait. Other suggested facilities for visitors, families and carers included: spaces for patient, family and carers education and training.

Access to outdoor spaces

Having access to outdoor spaces is another theme which came through strongly from our analysis. Easily accessible outdoor green space, which encourages wildlife, was deemed necessary for wellbeing and to have places in which people could have a break, a walk or sit down. It was further suggested that an outdoor garden space could be utilised to give people at the hospital an activity in which they could engage to promote wellbeing.

> *"Green space and more access to green spaces from the patient perspective. Some patients may not even make it to the green space due to their conditions, but at least a courtyard or atrium."* **HKS, Staff Interview**

Aesthetics that support relaxation

A strong theme from the data we reviewed was also aesthetics that support relaxation and calmness such as high ceilings; panoramic views; warm neutral and muted colour tones; reduced visual noise; comfortable chairs and furnishings; greenery; plants; and nature-themed artwork, particularly artwork which showcases the talents of the people of Imperial.

> *"You are not here because you chose to come here. I don't think that's what the entrance conveys. Our receptionists are welcoming. We do good on the human side of things, but not on aesthetics – it's not calm."* **HKS, Staff Interview**

> *"Architecturally there should be a lot of space, including high ceilings. I find this really calming and soothing and it's something I love about St Mary's."* **Kaleidoscope Health and Care and the Nuffield Trust report, Patient and community member**

Several users participating in previous internal engagement referenced other providers' approaches to designing a relaxing, calm environment, this included 'Maggie's Health Centres'. Maggie's[9] emphasise the impact that their buildings have on helping the people who visit them feel better, adopting a philosophy that their spaces should feel like a 'home from home". Specific considerations for all of their buildings (listed on their website) include:

- calm, friendly and welcoming places, full of light and warmth
- have a kitchen table at their heart
- offer glimpses and views of the nature that surrounds them
- provide thoughtful spaces to find privacy as well as places to come together as a group

> *"The Maggie's Centre is a lovely example of holistic care – beautiful building, roof terrace, oasis of calm, break out areas".* **Wellbeing data capture series (Spiritual, Mental and Emotional Wellbeing), Staff Interview**

People also stated that hospital aesthetics should support relaxation for those with sensory conditions, and other conditions such as Dementia. This could be

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[9] https://www.maggies.org/about-us/how-maggies-works/our-buildings/

achieved by: utilising clear and literal imagery; not using images that could act as triggers for patients and family members; ensuring spaces have low-sensory options; and by having rooms in which people can relax and disconnect from the stress of the hospital environment and experience.

> *"Typically, in waiting rooms you'll have a radio or TV playing. Could be relaxing for others, but just another noise for autistic people that you cannot filter out, making my experience worse [...] A lot of information on the boards. If your sensory overload is because of colours or lots of visual information, someone like me would become dizzy. Maybe fall over. It's not that you can't have these things, but you've got to have somewhere else to look at when you get those things."* **HKS, Staff Interview**

Spaciousness

A further strong theme within our data was spaciousness. Participants felt that current spaces within the hospital, especially corridors, were narrow, cramped, claustrophobic and overcrowded. Spaciousness was thought to be key to the new hospital design for navigation, clutter-free spaces, easy flow of people through the hospital and to feel less crowded and therefore more comfortable.

> *"It's good as you walk in, and sometimes it feels a bit cramped – [...]it's a bit enclosed when you walk in. [...]there are loads of rooms that are right next to each other and the corridors are cramped with a lot of people trying to get to their appointments."* **HKS, Patient Interview**

Spaciousness was also deemed essential for good clinical care. Space is needed to ensure environments are accessible for those with wheelchairs, mobility devices and pushchairs; rooms need to be the right size to accommodate additional members of the clinical care team, family and friends of patients (for support and care education) and the necessary clinical equipment; and space is required for the needs of domestic staff such as storage for cleaning products.

> *"Labour wards, the rooms are smaller. A lot of people complain. In an emergency, it's so difficult to navigate each other, you bash into each other, bash the equipment on walls. [...] the rooms are not large enough to do the things you need to safely. Not a lot of integrated storage space. There is a lot of equipment on trolleys."* **HKS, Staff Interview**

Amenities and facilities

A number of amenities and facilities were suggested to improve the hospital experience. These include convenience amenities and facilities such as bike storage, cashpoints, and access to Wi-Fi. Food and refreshment amenities and facilities were suggested, such as vending machines, water coolers, coffee shops and places to purchase healthy and affordable food, such as a fruit and veg shop. Hygiene amenities and facilities were proposed, such as accessible toilets, changing rooms and showers. Suggested health and wellbeing amenities and facilities were a gym, a spa, massage rooms, library, hairdressers;

> *"Nutrition doesn't seem to be part of the picture in our food provision – big vendors are not interested in wellbeing. We shouldn't have to rely on*

Costa." **Wellbeing data capture series (Spiritual, Mental and Emotional Wellbeing), CONTACT team meeting**

"Bathrooms are designed too small to have assistance, Charing Cross and St. Mary's cannot accommodate people in the bathroom." **HKS, Staff Interview**

Principle 5: Our hospital design will support a positive waiting experience

We will design spacious and comfortable waiting areas and use innovative technology to support the needs of people waiting for care.

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Design considerations

How could we achieve this?[10]
- **Waiting areas will be open and spacious with enough comfortable seating in a variety of styles, including wheelchair, mobility scooter and pushchair waiting spaces**
- **Waiting areas will include calm, quiet spaces**
- **People in waiting areas will have easy access to water, affordable healthy food, and toilets**
- **There will be separate waiting and play areas (with age-appropriate entertainment), for young children and families, and suitable waiting facilities for older children, young adults and teenagers**
- People will be able to check-in for their appointment by speaking to a receptionist or digitally, and will be provided with information about where to go, waiting times and their position in the queue
- Waiting area decor and furnishings will be designed for their appropriate department or ward and be suitable for different age groups

Strength of evidence: Rank 1

Principe 5 is supported by multiple types of data sources of generally strong quality. Themes relating to principle 5 were corroborated by high levels of consistency within internal and external data sources.

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Principle 5 context

The primary themes that fed into the development of Principle 5 included:
- inclusive and accessible waiting areas
- age appropriateness
- communication
- efficiency
- digital technology

These themes are explored in more detail below.

Inclusive and accessible waiting areas
Distinct from, but related to, the specific principle "Our hospitals will be inclusive and accessible" the data suggests that there is a specific need for waiting areas' design to be inclusive and accommodating to improve users' waiting experience.

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[10] Design considerations that are commonly cited within the data, and could be classified as 'priority' considerations are bolded

Specific consideration is needed for those with physical disabilities, such as spacious areas which can accommodate wheelchairs and mobility scooters, and adequate numbers of accessible toilets near waiting areas. Audio descriptions for the visually impaired (for announcements on waiting times, or appointments), and screens and buzzers (which light up) for the users with hearing impairments, were suggested considerations. Other inclusive design considerations within waiting spaces were adequate numbers of quiet, calm, low sensory spaces for users with sensory and neurological conditions.

Age appropriateness

Age appropriateness was a key theme that fed into the development of this principle. Specific considerations were the separation of child and adult waiting areas in departments such as Accident and Emergency; this was mentioned in relation to reducing noise and irritation, but also to mitigate the chances of children being exposed to upsetting sights (due to the severity of injuries) and anti-social behaviour (due to the higher likelihood of being around users who are drunk).

> "*There were quite a lot of people that were drunk around me and it was a bit frightening for me to walk in with a young baby because they're literally next to each other. You can hear all the screaming from the adult section, and you're there with a young child - it can be quite intimidating.*" **HKS, Patient interview**

Other considerations for designing environments which are age appropriate centred on decor, furniture and entertainment. People mentioned play spaces for younger children, craft spaces, visual stimuli, magazines and television.

> "*There's so many kids from different ages running around. There are not enough things to keep them occupied so you have the little ones that are crawling on the floor with little toys, then you have teenagers sitting there on their phones, and you have a TV that doesn't work [...] If they gave a section to the teenagers - put something there that interests them [...] and then maybe like a section for the little kids, where they could play in an enclosed space.*" **HKS, Patient Interview**

One tension apparent from the evidence is the lack of appropriate spaces for older children and teenagers. Users participating in previous internal engagement highlighted that currently, spaces are more equipped for younger children but do not offer anything to improve the waiting experience for teenagers and younger children.

> "*It's much more suited for younger kids than the older ones. There are not enough things to keep occupied […] so you have the little ones that are crawling on the floor with toys, then you have teenagers sitting there on their phones, and you have a TV that doesn't work. I think maybe if they gave a section to the teenagers - put something there that interests them, maybe some internet access so they could go on YouTube or things like that. And then maybe like a section for the little kids, where they could play in an enclosed space.*" **HKS, Patient Interview**

Communication

Communication was another key theme feeding into the development of this principle. Clear, open communication from staff was cited to help with improving users overall experience, and more specific considerations such as using a microphone at reception to improve clarity and avoid shouting in waiting areas. Digital technology was often mentioned as an enabler for better communication to improve waiting experiences. This included the use of digital screens (visible from everywhere in the area) to display estimated waiting times, providing users the opportunity to check-in for their appointment digitally, and using digital technology (such as app and phone interfaces) to provide users with information about where to go, notifications on waiting times and their position in the queue. Some users expressed caution in relation to digital solutions, particularly in relation to digital exclusion; the evidence supports that hospitals should consistently provide an option to speak to a member of staff.

Efficiency

A common theme among each of these elements (in particular communication, and use of digital technology) is efficiency in relation to waiting. People often mentioned the importance of efficiency in helping to shift power dynamics between physician and patient, for example, changing the experience of patients having to wait endlessly to be seen by a clinician, to an experience of being able to proactively manage the wait.

Principle 6: Our hospitals will have protected, comfortable areas for staff

Our hospitals will have areas for staff to work, study and take breaks, away from clinical or public spaces.

Design considerations

How could we achieve this?[11]
- **There will be spacious, clean and well-maintained rest and change facilities for all staff and volunteers, which will include showers and lockers to store personal belongings**
- **There will be places for staff to buy affordable healthy and hot food 24/7 without leaving the building**
- **There will be enough working spaces for private work, virtual meetings, and collaboration with colleagues for clinical and non-clinical staff, including spaces away from patient areas**
- **Staff eating and social spaces, both within and outside their departments, will be separate from patient, visitor and public areas**
- **There will be training spaces for staff with enough computers and sit/stand desks, both within and away from patient areas, supporting work, learning and collaboration between colleagues**
- **There will be smaller private spaces within staff areas to help staff decompress and wind down**
- **There will be space for staff to securely store bikes and appropriate spaces for staff car-parking, dependent on the physical limitations of each hospital site or estate**
- **There will be adequate spaces to support the needs of hospitality, domestic and other non-clinical staff members, such as enough storage for cleaning supplies on each floor for domestic staff**
- **Staff spaces will be consistently designed and resourced across departments and will be accessible to all levels and disciplines of staff**
- There will be enough workstations for staff to easily access digitally held patient records and digital systems to help with managing and scheduling activities
- Staff rest spaces will have kitchen facilities to heat and store food safely
- Staff will have access to facilities that support physical wellbeing. Local spaces outside of the hospital site will be made available and accessible for staff use, such as local gyms, food markets

Strength of evidence: Rank 2

Principle 6 is supported by multiple internal data sources. Themes related specifically to protected staff spaces were present, but less commonly found in external data sources. However, it should be noted that the relatively lower presence of these themes in external data sources is not necessarily an indication of lower data quality given that the selection of external literature for review mainly focused on data comparable to the Trust's local communities.

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[11] Design considerations that are commonly cited within the data, and could be classified as 'priority' considerations are bolded

Principle 6 context

The main themes that fed into the development of this principle were
- dedicated and protected spaces for staff
- collaboration

These themes are explored in more detail below.

Dedicated and protected spaces for staff

Space for staff to rest and separate themselves from patients was a commonly mentioned priority to improve overall staff experience. These spaces were evidently vital to support staff wellbeing and development, and are a core factor in ensuring staff feel valued and respected. Specific requests for protected staff spaces are outlined in Box 1.

Box 1. Staff requests for protected spaces

- Changing facilities, with lockers and showers
- Spaces for staff to securely store bikes and site-appropriate spaces for staff car parking
- Access to facilities that support physical wellbeing, common requests included a gym and multi-use exercise spaces
- Designated quiet spaces for staff to unwind
- Designated outdoor spaces for staff, such as a staff garden
- Communal spaces that support staff 'bumping into one another', helping to support working relationships and socialisation
- Staff canteens and other food options, serving healthy and hot food at all hours
- Staff kitchens
- Well equipped office spaces and spaces to take virtual calls
- Adequate spaces to support domestic, facilities and hospitality staff

Collaboration

Linked to protected working and communal spaces, 'collaboration' was another key theme feeding into the development of this principle. People frequently mentioned inclusion, connection and sharedness of these spaces as important to help reduce siloed working and support staff to work through common solutions, educate one another and offer support.

> *"Togetherness is so important for staff – siloed working is a big problem at Imperial. We need protected social and communal space for staff to meet and share ideas, like common rooms and cafes".* **Wellbeing data capture series (Spiritual, Mental and Emotional Wellbeing), Staff Interview**

Solutions for building collaborative spaces included introducing measures to lessen the gap between clinical and 'facilities' staff, providing non-hierarchical spaces that support the development of relationships between all staff working within the building. Non-hierarchical spaces were also raised in relation to mixing

clinical staff, with some users commenting that higher grade staff members appeared to occupy the best spaces.

> "There is a huge gap between clinical staff and the facility team…There are matrons and nurses who don't differentiate between porters, cleaning, or catering staff […] Even when staff are working for so many years, they don't know their names […]The Trust is acknowledging that. They are trying to educate us that we are one family. COVID has supported this. If you don't work together, you won't get through this." **HKS, Staff Interview**

People also described the impact of logically designing hospital spaces in regard to co-location and service adjacency and how this impacts collaboration. This included a consideration of who or which departments work regularly with one another (clinical and office spaces), ensuring that teams who collaborated regularly were situated in the same building where possible.

> "It is important to have all imaging services together. At St. Mary's, we have a trauma centre, and it's frustrating that the way people have to take a lift and then go through three doors. Integrating imaging into the acute side of things is important […] Imaging consultants run up and down the corridor – it's a waste of their time. If you're in the same place and environment, it encourages teamwork. Being spread out in spaces causes inconvenience." **HKS, Staff Interview**

Principle 7: Our hospitals will reflect our history and support local communities

We will retain some of our buildings' character while delivering healthcare innovation. We will open up to local communities and provide a modern care experience for now and the future.

Design considerations

How could we achieve this?[12]
- **Where possible and appropriate, we will preserve, retain and/or restore original, historical architectural building features**
- **We will not use colour schemes that will cause the building to soon look dated**
- **There will be designated spaces which are accessible by the wider community and can be used for events, programmes and education that support and reflect our local communities. These will be provided without compromising on hospital security and patient safety**
- **There will be spaces and facilities that support local communities beyond hospital care, such as primary care services, and shared outdoor spaces**
- The architectural design of our hospitals will be unique, generate interest, and reflect different cultures beyond the conventional modern style of design.
- Healthy food offered within our hospitals will reflect the diversity of our community and cultures
- There will be space for food stalls, to rotate local businesses that offer a variety of healthy food (with consideration on the types of cuisine eaten by local community members).
- There will be space for artwork that celebrates local artists and the art of staff, patients and the local community
- Rooms, wards and wings will be named after local people and places of significance
- Notice boards, leaflets and digital information kiosks throughout our hospitals will provide information about the local area

Strength of evidence: Rank 2

Principle 7 is supported by multiple internal data sources. Themes relevant to Principle 7 were often made in reference to the specific range of communities that the Trust serves. External data sources supported themes relevant to Principle 7, but were less prevalent and less specific, for example references made to 'enhancing' the community that hospitals serve. However, it should be noted that the relatively lower presence of these themes in external data sources is not necessarily an indication of lower data strength given that the selection of external literature for review mainly focused on data comparable to the Trust's communities.

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[12] Design considerations that are commonly cited within the data, and could be classified as 'priority' considerations are bolded

Principle 7 context

The main themes that fed into the development of Principle 7 were:
- balancing history and innovation
- maintaining the building's personality and identity
- modern
- links to the community
- community spaces
- resilient design for the future

These themes are explored in more detail below.

Balancing history and innovation

Evidence relating to balancing history and innovation was centred around maintaining and honouring the Trust's previous achievements and impressive history, whilst moving forward with innovative design that supports all users. People mentioned the importance of balancing the old and the new. Specific considerations included preserving, retaining or restoring original, historical architectural building features. Common examples include preserving the original Praed Street facade and iconic archway. Other examples include the Fleming Museum, and views and access to the canals.

> *"It's an old building […] It is outdated and has a unique history. There should be an old St. Mary's to preserve the history and the ward should be completely renovated. Receptions and less patient spaces can be historical [...] having a modern set up and in a nice work environment will help to retain nurses and doctors. If you are in a good environment, you are happier*." **HKS, Staff Interview**

In regard to innovation, in general all users wanted a 'modern' hospital. Some people mentioned this as an opportunity to transform the Trust's buildings from 'old, inadequate, and below standard' to 'well-equipped, adaptive, appropriate spaces' that are fit for purpose and enable safe, effective and functional care. Specific references to 'modern' spaces were not very common within the data, however design considerations covered in principle 4 would apply (such as spaces that are light, bright and airy).

> "*The hospitals were built in the 1800s and we can't take heavy beds on landings. We have to work with what we got but hopefully we don't make the same mistakes in the new builds.*" **HKS, Staff Interview**

It is clear from the existing evidence that preserving elements of the Trust's history should not come at the expense of modern, forward-thinking design that reflects and supports the expert care delivered by staff.

Maintaining building's personality and identity

Linked to the above; 'maintaining the building's personality and identity' was another key theme contributing to the development of this principle. Similar to evidence relating to preserving the building's history, users across internal data

sources mentioned a sense of belonging to the Trust's sites, supported by the Trust's strong sense of personality.

> "*St Mary's has got a strong personality – from the Fleming heritage to the excellence associated with quality of care and Imperial's research. We need to create a balance between pride [...] with being welcoming and compassionate. The new hospital needs to embody that, as well as bringing in the surrounding community. Imperial's a great place to work in so many ways, but the buildings don't reflect that*". **Wellbeing data capture series (Spiritual, Mental and Emotional Wellbeing), Staff Interview**

Links to the community

As well as honouring and preserving the Trust's history through building design, people described measures that draw attention to the Trust's corporate image and values. This led to design considerations centred around celebrating the Trust's 'links to their communities'. This included: art that reflects and celebrates the Trust's local population, names of buildings and spaces that reflect the Trust's identity, food outlets that encourage community partnerships and reflect the diversity of the local area, and readily accessible information points throughout the building (via leaflets and digital kiosks) that provide information about the Trust and local area.

> "*Art is essential – it de-medicalises the hospital. It can set the tone and bring in the local community. For instance, there was an art project, 'Breath is invisible' celebrating the life of a young photographer that died in Grenfell that had a big impact*". **Wellbeing data capture series (Spiritual, Mental and Emotional Wellbeing), Staff Interview**

Community spaces

'Community spaces' was another core theme for this principle. People cited design considerations such as: shared spaces that could be used for exercise classes and arts classes, shared green spaces that are accessible to community members, and accessible facilities to buy healthy and varied food (with consideration to the types of cuisine eaten by local community members). Other community accessible facilities cited within internal data sources included the integration of primary care services. Whilst some people valued the cohesive benefits of spaces that can be accessed by local communities, other stakeholders felt strongly that spaces would need to be clearly designated to avoid tensions between community access, patient safety and hospital security.

Resilient design for the future

The theme of 'resilient design for the future', in this principle also featured within principle 1, in the commitment to long, lasting, forward thinking refurbishment that will not quickly become dated.

Principle 8: Our hospitals will be environmentally friendly

We will maximise our use of renewable energy sources, environmentally responsible materials, and sustainable construction to ensure our hospitals are Net Zero buildings.

Design considerations

How could we achieve this?[13]
- **Our hospitals will be designed to be Net Zero buildings to reduce the impact of our hospitals on the local environment**
- **Where possible, we will utilise renewable energy strategies**
- **Waste storage, transport and disposal will be improved with the use of: technology for waste management such as automatic guided vehicles; dedicated and spacious lifts which can accommodate more than one waste cart; separate storage facilities for different types of waste; and dedicated facilities for waste disposal to reduce costs of transporting waste to disposal sites**
- Environmentally responsible materials will be used to build our hospitals
- Recycling stations will be available throughout our hospitals
- Where possible, sustainable products will be used within our hospitals
- To reduce energy demands, our hospitals will have high-efficiency building envelopes and glazing, as well as high-efficiency mechanical and heat recovery equipment
- Our hospitals will be designed to reduce water demands
- We will explore new approaches to reducing our impact on the environment

Strength of evidence: Rank 3

Principle 8 is supported by fewer internal data sources of lesser quality. Evidence relating to 'sustainability' was mentioned fewer times in relation to the impact of this principle on all users' experience of hospital visits, but was nevertheless perceived by some stakeholders as a crucial priority for designing hospitals of the future.

Principle 8 context

Across both internal and external evidence, building ecologically responsible environments that contribute to positive environmental, economic, human, and social impacts and can endure the test of time was an often-repeated factor in designing future hospital sites. The specific design considerations listed here are reflective of what we found in the desktop review, although qualitative user perspectives on these considerations are not common. Sustainability is part of the 'minimum viable product' of the design, in other words sustainability is

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[13] Design considerations that are commonly cited within the data, and could be classified as 'priority' considerations are bolded

inherent and there are strong expectations for it in the building designs of the future. In addition, striving for sustainability will help the hospital economically by avoiding any future carbon taxes that may be implemented.

Internal evidence related to this principle featured some remaining tensions in regard to sustainable design and meeting the needs of all users; teams designing for sustainability also need to ensure that the design priorities associated with sustainable initiatives do not discriminate against diverse or vulnerable individuals.

External evidence related to this principle, particularly from the Whipps Cross (London) hospital redevelopment, is consistent and aligned with this principle. The Whipps Cross hospital design principles include a drive and aspiration to achieve sustainability in the form of Zero Net Energy and Carbon Neutrality. In order to achieve this, as a minimum, they aim to achieve a BREEAM Excellent accreditation. BREEAM is an independent assessment which evaluates the design, construction, and in-use performance of a building on sustainability issues such as health and wellbeing, pollution, transport, materials, waste, ecology and management processes, and reduction of carbon emissions energy and water consumption.

Implications and next steps

The design principles are grounded in a wealth of user perspectives, gathered through work undertaken by the Trust and from external literature sources. Given the consistency between our external literature review, our internal literature review, and the detailed exploration of missing voices, the design principles are both evidence-based and sufficiently representative of most groups of hospital users. For these reasons, we do not recommend additional literature review at this stage.

The set of design principles provides a strong foundation on which to proceed with the next stages of this design process. A particular focus of any future engagement should involve, and be tailored to, specific demographics highlighted as underrepresented in the data. These groups are: people whose ethnicity is other than White British; people from different faith communities; people who identify as non-binary or transgender; people with neurodiversities such as autism; and those who have had a stroke and other neurological and long term conditions. This targeted approach would fulfil the need to cover these remaining gaps in perspectives and for the Trust's full range of communities to become involved in, and energised by, the redevelopment process.

Overall, the Trust's engagement and engagement from external sources shows that a high degree of inclusion and representativeness is difficult to achieve. A key lesson for the future is that user-engagement programmes must include a deliberate focus on capturing better data around the people that are involved. Future engagement should explicitly gather information about people's characteristics, and other demographic data such as socioeconomic status, age, and health conditions. In future, we recommend that engagement processes begin by taking the time to map out the patient and staff populations, and building engagement strategies and processes to be deliberately inclusive and representative.

Engagement for staff, patient and community should also be informed by recommendations arising from previous user engagement work done by the Trust. The main recommendations from previous user engagement work are summarised here:

- Consider diversity of opinion in future engagements; to gather a range of views that would be reflective of the Trust's local communities and stakeholders.
- Sustained involvement and communication throughout future engagement; helping to mitigate existing scepticism relating to the impact of staff, patient and community consultations.
- Use of accessible language, focusing on the core messages and avoiding unnecessarily long technical language. This also includes informing and updating communities in their own languages.

- Take engagement to people's community spaces, or where communities reside (as opposed to asking them to come to the Trust to share their perspectives).
- Offer incentives for participation.
- Build in adequate time and resources for engagement, this includes allowing sufficient lead in time to engage with community groups and other groups who may need more time to mobilise and provide views.
- Consider the methods used in future engagement, including building in alternatives for participants less comfortable with using digital technology, and specific preferences of community groups (such as not having to speak to a male researcher).

Additionally, we recommend further engagement with the wider hospital redevelopment ecosystem. Our engagement with external experts brought us to connect with the team from the Department of Health and Social Care New Hospital Programme, which is currently focused on Cohort two (out of four) of the national hospital redevelopment programme, supporting the development of four hospitals which are pending final approval. Imperial College NHS Healthcare Trust is part of Cohort four of the New Hospital Programme. The New Hospital Programme team offered support for reviewing and providing feedback for the design principles; connecting us with the HOPE (heads of patient experience) Network; initiating discussions with NHS staff on the Future NHS platform; liaising with internal teams such as Co-production and Patient and Public Engagement teams; as well as connecting with specific patient groups for review and socialisation of the design principles.

When the New Hospital Programme progresses to Cohort four, there will be substantial learning regarding hospital design from Cohorts 1-3 (including significant national engagement with groups such as LGBTQ+, older people and younger people). This learning would be an ideal supplement to the Trust's own engagement and should be harmonised with the Trust's design principles. So we also recommend that the next stage of the design process, where the design principles are socialised with the Trust's communities, involves the New Hospital Programme team to incorporate wider national learning and socialisation of the design principles, and to ensure cohesion and consistency with Cohort four of the New Hospital Programme.

Bibliography / list of resources

List of internal sources reviewed

These documents were sourced from Imperial College Healthcare NHS Trust.

- Action Disability Kensington & Chelsea access group, focus group data capture, 18/02/2021
- Better Hospitals Design Principles, Steering Group feedback, 24/02/2022
- Imperial College Healthcare Trust: Better Hospitals Involvement Charter, 2022
- HKS: Better Hospitals Design Principles: Kick off workshop
- HKS: Better Hospitals Design Principles: Hospital Visits - Workshop 1, Insights Verification
- HKS: Better Hospitals Design Principles: Hospital Visits - Workshop 1, Insights Verification (*with comments)*
- HKS: Better Hospitals Design Principles: Hospital Visits - Workshop 2, Including theme mapping, Feb 2022
- HKS: Better Hospitals Design Principles: Hospital visits April 2022
- HKS: Staff Interview: Reception Staff-Participant (01), 01/12/2021
- HKS: Staff Interview: Council staff participant (02), 10/12/2021
- HKS: Staff Interview: Imaging department Staff-Participant (03), 13/12/2021
- HKS: Staff Interview: Learning disability HH Staff-Participant (04), 16/12/2021
- HKS: Staff Interview: OBGYN Trainee Staff-Participant (05), 20/12/2021
- HKS: Staff Interview: Vascular scientist Staff-Participant (06), 20/12/2021
- HKS: Staff Interview: CNS, Staff Participant, 07/12/2020
- HKS: Staff Interview: Environmental services Staff-Participant (08), 21/12/2021
- HKS: Staff Interview: Domestic manager in SMH, Staff-Participant (09). 21/12/2021
- HKS: Staff Interview: FM team Staff-Participant (10), 21/12/2021
- HKS: Staff Interview: Research nurse Staff-Participant (11), 04/01/2022
- HKS: Patient Interview: ICU Patient-Participant (01), 08/12/2021
- HKS: Patient Interview: Trauma Patient-Participant (02), 16/12/2021
- HKS: Patient Interview: Mother of a Patient-Participant (03), 17/12/2021
- HKS: Patient Interview: Mother & Patient-Participant (04), 20/12/2021
- HKS: Imperial College Healthcare Trust Crosswalk Document
- Imperial College Healthcare Trust: Clinical Thinking Group, Infographic Series, 2020:
  - Infographic 1: Building for research, innovation and learning
  - Infographic 2: Future proofing and cross sector learning
  - Infographic 3: Single bed rooms patient and carer experience
  - Infographic 4: Wayfinding, sense of place and identity
  - Infographic 5: Circulation, Flow and Adjacencies in Healthcare

- - Infographic 6: Vertical Transportation
  - Infographic 7: Different Ways of Working
  - Infographic 8: Logistics, Robots and Drones
  - Infographic 9: Clever Decant
  - Infographic 10: Digital Systems
  - Infographic 11: Nutrition and Catering Operations
  - Infographic 12: Sustainability and Wellness
- Imperial College Healthcare Trust: Lay partners 'Patient vision' mind-map, "Smart Hospital of the Future"
- Imperial College Healthcare Trust: Young people at Imperial Big Room, focus group with staff, 12/08/2021
- Imperial College Healthcare Trust: Lay Partner Pen Portraits, 2020
- Imperial College Healthcare Trust: Lay Partner Pen Portraits Themes, 2020
- Kaleidoscope Health and Care and the Nuffield Trust, User Insight Report, 2020
- Wellbeing data capture series (Spiritual, Mental and Emotional Wellbeing), 2020/21
  - Staff Interview, ED Consultant
  - Staff Interview, Consultant in Palliative Medicine and Clinical Lead for End of Life Care
  - Palliative Care Team meeting
  - Young People at Imperial, Big Room
  - Multidisciplinary BAME network meeting x 2
  - Safeguarding Team meeting
  - Staff Side meeting
  - End of Life, Big Room
  - I-CAN Network meeting
  - CONTACT team meeting

List of external sources reviewed

These documents were sourced from external experts and contacts through our network, who have expertise in working with patients and people who have visited hospitals.

1. Fable Hospital 2.0: The Business Case for Building Better Health Care Facilities
2. St Pancras Hospital Redevelopment Proposal - Informal Consultation with service users, former service users, staff and carers
3. Patient experiences of Charing Cross Hospital and their views on its future
4. Whipps Cross - High level hospital design principles to help guide the creation of the physical spaces which will make up the future hospital
5. White City Zone - Wellbeing Map
6. Great Western Hospital: You Said, We Did (Swindon)
7. What's it like being in a hospital waiting room? People's views in Birmingham
8. Language barriers and access to healthcare in Norfolk

Appendices

Appendix 1. Teams involved in this work

The Better Hospitals: Design Principles Steering Group

The role of the Better Hospitals Design Principles Steering Group has been to:

- Guide and support the development of the Better Hospitals Design Principles, including agreeing final content.
- Ensure patients, staff and local community priorities are captured within the design principles.
- To identify any issues or gaps in the development of the design principles for resolution by the RPDG.
- To provide oversight and support to the progress of the development of the design principles through the lifetime of the redevelopment programme.
- Challenge the design of user insight research to ensure it is robust, accessible and relevant.

The group met three times over the course of this research project. The membership of the group was made up of staff members (including staff network representatives and members of the Strategic Lay Forum, many of whom had been patients at St Mary's) patients and community members.

Membership, as of 4 Nov 2021

Chairs:
Deirdra Orteu, Trust Head of Clinical Planning
Tanya Hughes, Trust Redevelopment Communications Lead
Members:
Merril Hammer, Save our NHS
Serena Simon, Programme Director, Church St Regeneration, Westminster City Council
Mariya Stoeva, Chair, Action Disability Kensington & Chelsea access group
Julie Fletcher, Trust lay partner
Marilyn Warnick, Trust lay partner
Jane Wilmot, Trust lay partner and disability champion
Radhika Poonwasi, Trust I-CAN network (rotating with Richard Allen and Ian Longhurst)
Katharine Brown, Chair, Trust Nursing and Midwifery Race Equality network
Joselyn King, Chair, Trust Multidisciplinary Race Equality network
Tim Sullivan, Chair, Trust Staff Side committee
Lucy Bingham, Trust ED consultant
Neil Thompson, Trust Head of Paediatric ED
Gabrielle Mathews, Trust junior doctor and young people's advocate
Chris Bound, Trust Lead CNS Children and Young Person's Diabetes Team

The steering group worked closely with the research team, the Trust's healthcare planning team and other Trust staff members involved in the evolution of the project ('working group' members)

The research team
The research team consisted of the following members of Kaleidoscope Health and Care:
- Jess Tudor-Williams
- Corinne Armstrong
- Tom Rossington
- Naheem Bashir

Trust redevelopment planning team
- Deirdra Orteu: Head of Clinical Planning
- Wendy James: Senior Healthcare Planner
- Hina Lad: Healthcare Planner
- Anika Rahman: Redevelopment Healthcare Planning Assistant
- Tanya Hughes: Trust Redevelopment Communications Lead

Trust working group members
- Darius Oliver, Associate Director of Communications
- Linda Burridge, Head of Patient and Public Partnerships
- Hannah Franklin, Long Term Plan Senior Manager
- Allison Phillips, Redevelopment Commercial Director
- John O'Toole, Redevelopment Project Director

Better Hospitals Design Principles:steering group 'validation' workshop 23rd August 2022, 16:00 - 17:30
- **Research Team**
  - Jess Tudor-Williams
  - Corinne Armstrong
  - Tom Rossington
- **Trust redevelopment planning Team**
  - Tanya Hughes
  - Deirdra Orteu
  - Hina Lad
  - Anika Rahman
  - Wendy James
- **Steering Group**
  - Merril Hammer
  - Marilyn Warnick
  - Mariya Stoeva
  - Julie Fletcher
  - Joselyn King
  - Chris Bound
- **Key individuals**

- ○ Shanaka Dias (Deputy Chair, Trust Strategic Lay Forum)
- ○ Darius Oliver
- ○ Linda Burridge
- ○ Hannah Franklin

Better Hospitals Design Principles: steering group final review workshop
13th September 2022, 16:00-17:30
- **Research Team**
    - ○ Jess Tudor-Williams
    - ○ Corinne Armstrong
    - ○ Naheem Bashir
- **Trust Redevelopment Planning Team**
    - ○ Tanya Hughes
    - ○ Deirdra Orteu
    - ○ Wendy James
    - ○ Anika Rahman
- **Steering group members**
    - ○ Julie Fletcher
    - ○ Merril Hammer
    - ○ Chris Bound
- **Key individuals**
    - ○ Linda Burridge
    - ○ Allison Phillips
    - ○ John O'Toole
    - ○ Darius Oliver

Appendix 2. External literature summaries

1. **Fable Hospital 2.0: The Business Case for Building Better Health Care Facilities**

Why this was reviewed: This was recommended for our review by Marc Sansom (Salus Global).
Demographic characteristic: Not specified
Demographics: Not specified
What we learned: The Fable Hospital, an imaginary facility with the best design innovations, was proposed in 2004, and the authors indicate that many healthcare systems have consequently adapted the principles in the building of their hospitals. This paper provided numerous evidence-based recommendations for the design of a new hospital which were largely consistent with the findings from our internal literature review.
Design principles: This informed all 8 design principles

2. **St Pancras Hospital Redevelopment Proposal - Informal Consultation with service users, former service users, staff and carers**

Why this was reviewed: This piece of literature provided an insight into inpatient experiences at two Central London hospitals.

Demographic characteristic: Not specified

Demographics: Interviews were conducted with a total of 26 service users who were in-patients at the wards of either the St Pancras or Highgate Hospitals during the months of February and March 2018. At least two people were interviewed from every ward on both sites with the exception of Ruby Ward (the acute ward at St Pancras site) and those wards that are specifically for patients with dementia. Interviews were also conducted with 5 former in-patients, 8 carers and 16 ward staff members. Seventy three per cent of the in-patients interviewed had experience of being an in-patient at both the St Pancras and Highgate Hospitals. In total, 55 Interviews were conducted over a period of two months during February and March 2018.

What we learned: This piece of literature provided insights which were highly consistent with the findings from our internal literature review. Strong themes included: comfort in the form of single rooms with ensuite, good affordable food, adequate toilets and showers, privacy, outdoor space and temperature control; amenities such as good Wi-Fi, a convenience store, a cash point and vending machines; facilities for staff such as lockers, showers, and meeting spaces; easy navigation to the hospital with pathways and exterior lighting from the tube station and apps/guides/maps for the local area.

Design principles: This informed Principle 3: Our hospitals will be easy to get into and get around; Principle 4: Our hospitals will be welcoming, calming and comfortable; Principle 6: Our hospitals will have protected, comfortable areas for staff

3. **Patient experiences of Charing Cross Hospital and their views on its future**

Why this was reviewed: This report provides outpatient views on the future of Charing Cross Hospital and their experiences of using the hospital. We collected a total number of 218 responses from outpatients. Most of the people we surveyed identified themselves as patients (85.4%), although a small percentage identified themselves as carers (6.85%) and visitors (7.3%).

Demographic characteristic: Not specified

Demographics: Not specified

What we learned: Outpatients emphasised the importance of cleanliness within the hospital; and the need for appropriate signage which supports navigation around the hospital.

Design principles: This informed Principle 1: Our hospitals will promote safe, secure and dignified care, in secure surroundings; Principle 4: Our hospitals will be easy to get into and get around;

4. **Whipps Cross - High level hospital design principles to help guide the creation of the physical spaces which will make up the future hospital**

Why this was reviewed: The redevelopment of Whipps Cross hospital is, at the time of writing, the most recent hospital development in London. Demolition of old

disused buildings is due to be complete in 2022, with the new hospital expected to be completed in 2026.

Demographic characteristic: Not specified.

Demographics: Significant engagement has taken place across staff, patients, carers and local people since 2016, with at least 2300 points of engagement. However, specific demographic information was not provided.

What we learned: This data source provided insights which were highly consistent with the findings from our internal literature review. Strong themes included: easy navigation through clear zoning on site, obvious entrances, simple and clear wayfinding, short patient journeys, departmental adjacencies); design which supports patient privacy and dignity; modularity and resilience of the hospital design to anticipate the need for future change, with resilience in the form of flexibility, adaptability and expansion; embracing new technologies such as registration and waiting technologies, a Healthcare navigator app, telemedicine and virtual wards; enhancing the community the hospital serves through public spaces and community activities; be environmentally friendly and carbon neutral; be robust and built to last; provide social spaces for staff; and provide welcoming, calming and uplifting spaces.

Design principles: This informed Principle 1: Our hospitals will promote safe, secure and dignified care, in secure surroundings; Principle 3: Our hospitals will be easy to get into and get around; Principle 4:Our hospitals will be welcoming, calming and comfortable; Principle 5: Our hospital design will support a positive waiting experience; Principle 6: Our hospitals will have protected, comfortable areas for staff; Principle 7: Our hospitals will reflect our history and support local communities; Principle 8: Our hospitals will be environmentally friendly

5. White City Zone - Wellbeing Map

Why this was reviewed: This data source was recommended for our review by our Kaleidoscope Associate, Samira Ben Omar. This literature explored building communities focused on wellbeing.

Demographic characteristic: Not specified

Demographics: Not specified

What we learned: A community centre is a vital space to act as a central hub. This can host Family days (to raise awareness about health and wellbeing and offer advice about services); service fayre which is a bi-monthly event bringing community and service providers together to share information and ideas. Digital information points could further provide information about available services.

Design principles: This informed Principle 7: Our hospitals will reflect our history and support local communities.

6. Great Western Hospital: You Said, We Did (Swindon)

Why this was reviewed: In July 2021, Healthwatch Swindon, Wiltshire and West Berkshire heard the experiences of patients that had used the Emergency Department (ED), Urgent Care, and four inpatient wards at Great Western Hospital (GWH) in Swindon.

Demographic characteristic: Not specified

Demographics: Not specified

What we learned: This document provided us with key information about the needs of inpatients and outpatients such as: easy navigation; a good night's sleep; the ability to speak to loved ones; better food choices; involvement of carers; and more information when waiting.

Design principles: This informed Principle 3: Our hospitals will be easy to get into and get around; Principle 4: Our hospitals will be welcoming, calming and comfortable; Principle 5: Our hospital design will support a positive waiting experience.

7. **What's it like being in a hospital waiting room? People's views in Birmingham**

Why this was reviewed: This provided an overview of waiting experiences in 9 Birmingham hospitals. Birmingham is the second largest city in the UK, with a large and diverse population. Hence the population that the Birmingham hospitals serve was thought to be similar to the population served by Imperial College.

Demographic characteristic: Disability

Demographics: Not specified

What we learned: This piece of literature provided significant consistency with the themes and design principles we had discovered from our internal literature review. Strong consistent themes were: Comfort (seating, space, food, refreshments, temperature control); Comfortable and inclusive waiting (providing information about wait times using technology, screens and alternative means for those with sensory impairments; quiet waiting spaces; entertainment for children); Cleanliness; easy and inclusive navigation (clear and accessible signage around the hospital, no long corridors, minimise patient travel around the hospital, open spaces); inclusivity in the form of multi-faith facilities and availability of interpreters; accessibility in the form of adequate accessible toilets and ensuring the hospital is navigable by wheelchair; and staff training to support those with disabilities and sensory impairments to ensure patients' needs and rights are met;

Design principles: This informed Principle 1: Our hospitals will promote safe, secure and dignified care, in secure surroundings; Principle 2: Our hospitals will be accessible for everyone; Principle 3: Our hospitals will be easy to get into and get around; Principle 4: Our hospitals will be welcoming, calming and comfortable; Principle 5: Our hospital design will support a positive experience for people waiting in the hospital

8. **Language barriers and access to healthcare in Norfolk**

Why this was reviewed: Diverse languages from across Europe which are representative of London

Demographic characteristic: Not specified

Demographics: We were commissioned to conduct one focus group, and eight, one to one interviews with people who spoke little or no English, and five interviews with healthcare staff. The aim of which was to help the NHS policy makers understand the steps needed to ensure people get clear and accessible information that helps them make decisions and get the most out of services. First, Healthwatch Norfolk staff conducted a focus group with nine attendees, five from Latvia and four from Lithuania. The conversation was carried out through a

translator. We also conducted nine interviews with residents from Portugal, Eritrea, Romania, Russia, Poland, and Lithuania. These were also carried out through the use of translators.

What we learned: It is imperative that hospitals provide adequate and appropriate translation services so that patients are receiving the same quality of care regardless of communication needs. This should include recording on patient notes any communication barriers and preferences. If a patient requests translation services, they should be provided with them. It's not for staff to decide if the translation services are necessary.

Design principles: This informed Principle 2: Our hospitals will be inclusive and accessible

9. <u>Sensory impairment: experiences of health services</u>

Why this was reviewed: To specifically understand the experience of those with sensory impairments

Demographic characteristic: Ethnicity; Age; Biological sex; Gender identity; Religion; Disability; Sexual orientation

Demographics: 14 respondents completed the survey. Four responded on behalf of themselves, the remaining ten on behalf of a relative, partner or friend they cared for. Seven had a hearing impairment. One had a sight impairment. One had both a hearing and a sight impairment. Four had other sensory impairments. One did not share the nature of their impairment.

- **Age:** 13-17 years (7%); 25-34 years (7%); 35-44 years (7%); 45-54 years (14%); 55-64 years (21%); 75+ years (14%); Prefer not to say (7%); Did not answer (21%).
- **Gender:** Man (50%); Woman (36%); Did not respond (14%)
- **Gender identity:** Is your gender different from the sex you were assigned at birth? No (79%); Did not respond (21%).
- **Ethnic background:** Black Caribbean and White (7%); White: British / English / Northern Irish / Scottish / Welsh (79%); Did not respond (14%)
- **Sexual orientation:** Asexual (7%); Heterosexual / straight (64%) Prefer not to say (7%); Did not respond (21%)
- **Religion:** Christian (21%); No religion (57%); Did not respond (21%)
- **Do you consider yourself to be a carer, have a disability or a long-term health condition?** Yes - I consider myself to be a carer (29%); Yes - I consider myself to have a disability (43%); Yes - I consider myself to have a long term health condition (21%); None of the above (7%)

What we learned: This piece of literature particularly highlights the need for mutually agreed communication support, often in the form of an interpreter, for those with sensory impairments in hospitals. Interpreters should be available and the needs of those with sensory impairments should not be assumed by health and care professionals. Furthermore, mandatory staff training, such as deaf awareness training, is needed to support those with sensory impairments.

Design principles: This informed Principle 3: Our hospitals will be inclusive and accessible

10. <u>Manchester Learning Disabled Patient Journeys in Hospitals report</u>

Why this was reviewed: A walkthrough is a one-off, guided observation & analysis of a health and/or care process or pathway or a transect walk of a patient journey to a service.

Demographic characteristic: Disability

Demographics: Walkthroughs were conducted by people with learning disabilities. Two or three members of Manchester People First conducted each walkthrough.

What we learned: Signage which includes large texts, images and maps would be beneficial to those with learning disabilities to improve their experience of the hospital and of navigation.

Design principles: This informed Principle 2: Our hospitals will be inclusive and accessible; Principle 3: Our hospitals will be easy to get into and get around

11. Dementia-Friendly Hospital Charter

Why this was reviewed: The Dementia-Friendly Hospital Charter was launched in 2015 by the National Dementia Action Alliance and outlines the high level principles that a dementia-friendly hospital should provide.

Demographic characteristic: This source of data particularly mapped to our demographic characteristic of disability.

Demographics: Not specified

What we learned: From this charter, we learned that to support those with Dementia, the hospital environment must be comfortable and supportive, promoting patient safety, well-being and independence and people with dementia must be enabled to find their way around the hospital.

Design principles: This informed Principle 1: Our hospitals will promote safe, secure and dignified care, in secure surroundings; Principle 2: Our hospitals will be inclusive and accessible for everyone; Principle 3: Our hospitals will be easy to get into and get around; Principle 4: Our hospitals will be comfortable, welcoming and calming

12. The Principles of Inclusive Design

Why this was reviewed: This was suggested for our review by Jane from the steering group.

Demographic characteristic: Not specified

Demographics: Not specified

What we learned: This document suggested several key aspects of good inclusive design, such as wheelchair and pushchair access; visible and automatic doors; ensuring screens are visible from all angles; and avoiding steps where possible.

Design principles: This informed Principle 2: Our hospitals will be inclusive and accessible for everyone; Principle 3: Our hospitals will be easy to get into and get around; Principle 5: Our hospital design will support a positive experience for people waiting in the hospital

13. Dorset County Hospital A&E: People's experiences

Why this was reviewed: This piece of literature explored people's experiences of using A&E services at Dorset County Hospital, which was reviewed to assess

the similarity of our findings from our internal literature with hospitals in busy and well populated geographical areas.

Demographic characteristic: Ethnicity; Age; Gender identity

Demographics: Between September and December 2021 256 people were interviewed over the phone about their A&E experiences.

- **Gender identity:** 142 people identified as women; 95 people identified as men; and 19 people chose not to answer this question.
- **Age:** Most people were aged over 50. In other age groups, 20 people were aged under 24; 7 people aged 25-34; 59 people aged 35-54; 91 people aged 55-69; 58 people aged over 70; and 21 people preferred not to say.
- **Ethnicity:** Overall, 224 people identified themselves at White British, Irish, or any other White background; 12 people identified themselves as from another ethnic background; and 20 people chose not to answer.

What we learned: Key learning from this piece of literature highlighted the need, in A&E, for clear information, navigation and signposting; comfortable facilities such as blankets, refreshments and adequate seating; confidentiality and privacy for the patient; and technology to enable self check-in.

Design principles: This informed Principle 1: Our hospitals will promote safe, secure and dignified care, in secure surroundings; Principle 3: Our hospitals will be easy to get into and get around; Principle 4:Our hospitals will be welcoming, calming and comfortable; Principle 5: Our hospital design will support a positive experience for people waiting in the hospital

14. **Engagement with service users of North Bristol Trust's A&E department**

Why this was reviewed: This work sampled a population of those attending an A&E department, so we hoped we would be able to ascertain a range of viewpoints.

Demographic characteristic: Ethnicity; Gender identity; Religion; Disability; Sexual orientation

Demographics: during November and December 2021, a total of 101 participants completed the questionnaire about their experience of A&E.

- **Gender identity:** A total of 101 participants completed the questionnaire. 87 people answered the question on gender; 32 Engagement with service users at North Bristol Trust Accident & Emergency department Nov/Dec 2021 16 were men, 57 were women and one person was intersex.
- **Sexual Orientation:** 83 people answered the question about their sexual orientation and 18 people skipped this question. A total of 74 people identified as heterosexual, 3 people identified as bisexual, 2 people identified as asexual, 2 people identified as pansexual, 1 person identified as lesbian, and 1 person preferred not to say.
- **Ethnicity.** 83 people answered this question, 18 people skipped this question. 70 people identified as White British. Others mixed ethnicities.
- **Religion.** 84 people responded to the question: please tell us your religion or belief, 17 people skipped this demographic question. 36% Christian; 32% No Religion; 2% Buddhist; 1% Hindu; 1% Muslim; 1% Not Known

- **Long term conditions.** Healthwatch asked people if they had a long-term condition. Most respondents were attending the ED due to physical health (96). A minority were attending the ED due to mental health, one person arrived for mental and physical health. Additionally, two people responded with 'prefer not to say.' 67% responded no. 8% did not know or preferred not to say. 1% responded with Musculoskeletal condition; 7% with a mental health condition; 2% hypertension; 1% diabetes; 4% with cardiovascular, stroke or heart condition; 2% cancer; 7% asthma, COPD or respiratory condition.
- **Disability.** Most people attending the ED did not have a disability. Of the 98 answers 79% replied no, 7% said that they had a mental health condition, 6% said they had a physical or mobility impairment, 4% had a long-term health condition, 2% had sensory impairment and 2% preferred not to say. 3 people skipped the question and did not answer.

What we learned: This piece of literature particularly emphasised the need for technology to understand how long to wait and self check-in at waiting areas; provide comfort while waiting through timely information, comfortable seating and the availability of food and refreshments.

Design principles: This informed Principle 3: Our hospitals will be welcoming, calming and comfortable; Principle 5: Our hospital design will support a positive experience for people waiting in the hospital

15. The future of urgent and emergency care at Addenbrooke's Hospital

Why this was reviewed: Healthwatch Cambridgeshire and Healthwatch Peterborough were commissioned by the South Integrated Care partnership to find out more about local people's experiences of urgent and emergency care services.

Demographic characteristic: Ethnicity; Age; Gender identity; Disability

Demographics: More than 80 people shared their experience of using A&E services at Addenbrooke's.

- **Age:** They spoke to people from a range of age groups, including young people aged 13 to 24 years. 34% were aged 25 to 49 years and 26% aged 65 to 79 years. In addition, as part of their young people's focus groups, they spoke to 15 young people aged between 11 and 15 years.
- **Gender identity:** 76% described their gender as female and 24% described their gender as male.
- **Ethnicity:** The majority of people considered their ethnicity to be White: British / English / Northern Irish / Scottish / Welsh, with one in ten people telling us they were from a minority ethnic community.
- **Disability:** 17% considered themselves to have a disability and 46% told us they had a long-term condition.

What we learned: This piece of literature provided significant consistency with the themes and design principles we had discovered from our internal literature review. Strong consistent themes were: better waiting facilities and processes (more space, more light, availability of food and refreshments, use of technology to know when you will be seen); inclusivity in the form of wheelchair accessible spaces, toilets and more availability of wheelchairs; privacy and confidentiality when being seen; better navigation around the hospital through better signage

and information about facilities; and a separate entrance, waiting and treatment area for children and young people in urgent and emergency care.

Design principles: This informed Principle 1: Our hospitals will promote safe, secure and dignified care, in secure surroundings; Principle 2: Our hospitals will be inclusive and accessible for everyone; Principle 3: Our hospitals will be easy to get into and get around; Principle 4: Our hospitals will be welcoming, calming and comfortable; Principle 5: Our hospital design will support a positive experience for people waiting in the hospital

16. Updated designs for a new hospital and a brighter future for Whipps Cross

Why this was reviewed: This document provided an update to the Whipps Cross hospital redevelopment design principles following further engagement with Whipps Cross communities.

Demographic characteristic: Not specified

Demographics: Not specified

What we learned: The updated principles reflected further consistency with our design principles. Consistent themes included: clear wayfinding; natural light; access to green outdoor spaces; improved staff facilities and spaces to relax; adaptability of the design; and a sustainable design to contribute towards a net-zero carbon target.

Design principles: This informed Principle 1: Our hospitals will promote safe, secure and dignified care, in secure surroundings; Principle 3: Our hospitals will be easy to get into and get around; Principle 4:Our hospitals will be welcoming, calming and comfortable; Principle 6: Our hospitals will have protected, comfortable areas for staff; Principle 7: Our hospitals will reflect our history and support local communities; Principle 8: Our hospitals will be environmentally friendly.

Appendix 3. External literature points mapped to the design principles

The numbers in brackets at the end of each point below represent the numbered external literature documents from Appendix 2 which support that particular point.

Principle 1: Our hospitals will promote safe, secure and dignified care, in secure surroundings
1. Private space in meeting and care spaces for private discussions **[1, 2, 4, 11, 13, 15]**
2. Support patient privacy and dignity by embodying best practice in the separation of flows. Undressed patients should not pass by dressed patients. The delivery of supplies and removal of waste should be discrete **[1, 2, 4, 11, 13, 15]**
3. Decentralised nursing substations: Allow nurses to see into patient rooms, respond to issues more quickly, help reduce patient falls, and increase direct patient care. Improves nursing productivity and time in direct patient care **[1]**

4. Hand-hygiene facilities: Access to sinks in all patient rooms – increase handwashing compliance **[1]**
5. Ceiling-mounted patient lifts: Reduced musculoskeletal injuries sustained by staff from manually lifting patients **[1]**
6. Acuity-adaptable rooms: High infrastructure cost, but reduced patient transfers, medication errors, patient falls, and staff load, prevention of diagnostic and treatment delays, increased patient satisfaction. **[1]**
7. Room Modularity **[4]**
8. The primary network of horizontal and vertical circulation should provide a flexible chassis to base the design around. The UK principle of a Hospital Street is a key benefit in achieving this. **[4]**
9. Anticipate the need for future change by including three levels of design resilience: flexibility: standardise room sizes and dimension across a number of room uses to allow interoperability; adaptability: being able to take on new uses with minor buildings works; and expansion: horizontally or vertically **[4]**
10. Explore novel planning approaches such as Barn Theatres, Outpatient Pods, High Tech/Low Tech Groupings, Sterile core Operating Rooms, On Stage – Off Stage **[4]**
11. Embrace new and emerging technologies, such as: going paperless within the hospital; medical equipment advancements; telemedicine and virtual wards; IoT [Internet of things] and smart device management; RFID [Radio-frequency identification technology tracking and dashboards **[4]**
12. Identify smaller buildings and other spaces for potential hospital expansion should it be needed in the future **[16]**
13. Ensure cleanliness of the hospital **[3, 7]**

Principle 2: Our hospitals will be inclusive and accessible for everyone
1. Larger patient bathrooms with double-door access: Reduced patient falls en route or in the bathroom. Also wheelchair accessible **[1, 12]**
2. Low sensory and quiet spaces in waiting areas for those with hidden disabilities, or special needs especially children **[7, 15]**
3. Accessibility for wheelchair access and pushchairs **[15]**
4. Wheelchair accessible toilets **[7, 12, 15]**
5. More wheelchairs available **[12, 15]**
6. Automatic doors at entrances and corridors **[12]**
7. Support and provision for interpreters **[7, 8, 9]**
8. Staff training to support those with disabilities and language barriers **[7, 8, 9, 10, 11]**

Principle 3: Our hospitals will be easy to get into and get around
1. Open spaces **[7, 15]**
2. Information services and kiosks. Health information resources.
3. A Navigation hub or Information hub. This could include apps, maps and guides [**2, 6**]
4. Clear, large and accessible signage with images and pictures, colour coding and maps to support wayfinding [**1, 2, 3, 4, 6, 7, 10, 11, 12, 13**]
5. Pathways to support access to the hospital with exterior lighting **[1, 2]**

6. Easier and closer parking to the entrance [**15, 16**]
7. Wheelchair and child friendly parking spaces **[12, 15]**
8. Good transport links and easy navigation from station / public transport to the hospital [**2**]
9. Deliver short patient journeys - Departmental adjacencies to deliver simple and direct patient journeys, no long corridors and avoid steps where possible **[4, 7, 11, 12, 16]**
10. Clear zoning on site planning **[4, 12]**
11. Obvious, visible entrances **[4, 12, 16]**
12. Simple and clear wayfinding **[4, 7, 16]**
13. Embrace new and emerging technologies, such as a healthcare navigator app **[4]**

Principle 4: Our hospitals will be welcoming, calming and comfortable
1. Large single en suite rooms - Better clinical outcomes because of reduction in hospital-acquired infections, adverse drug events, and falls. Allows family to partake in care, increased patient satisfaction **[1, 2]**
2. Connecting with family using technology such as ward phones and virtual visiting [**6**]
3. Facilities for carers to stay overnight **[6]**
4. Availability of refreshments and affordable healthy food throughout the hospital, particularly in waiting areas and wards, which caters to dietary needs **[2, 6, 7, 13, 14, 15, 16]**
5. Noise-reducing measures: High-performance, sound-absorbing acoustical ceiling tiles and finishes, carpets, noise and vibration-isolated mechanical rooms, wireless pagers, and reduced alarm sounds **[1, 6, 11]**
6. Ear plugs and masks to help sleep **[6]**
7. Comfortable seating in all areas **[7, 13]**
8. Amenities such as cash points and convenience stores, particularly close to entrances **[2, 16]**
9. Temperature control **[2, 7]**
10. Wi-Fi throughout **[2]**
11. Air quality and HEPA filters - Enhanced indoor air quality: HEPA filtration is 99.97% effective in removing airborne contaminants. **[1]**
12. Natural light in spaces, particularly in waiting areas with views from windows **[1, 15, 16]**
13. Multifaith facilities **[7]**
14. Reduce stress by its environment through means such as artwork **[1, 4]**
15. Quiet spaces for reflection and meditation **[1]**
16. Family and social spaces **[1, 4]**
17. Easily accessible outdoor space and gardens **[1, 2, 16]**
18. Provide welcoming and uplifting spaces - Create a sense of civic pride • Provide positive distraction and environmental comfort • Include elements that promote wellness **[4]**

Principle 5: Our hospital design will support a positive waiting experience
1. Spacious and not overcrowded waiting areas **[7]**

2. Self-check-in **[13, 14, 15]**
3. Information, provided by technology or screens for example, so people know what is going on and how long they will have to wait and where to go **[6, 7, 12, 13, 14, 15]**
4. The use of sound to alert those with visual impairment and buzzers [which light up] to help those with hearing impairments when it their turn to be seen **[7, 15]**
5. Separate child entrance and area to avoid distress for children and those who are waiting without children such as older people **[15]**
6. Distraction boxes and entertainment for children **[7]**
7. Embrace new and emerging technologies, such as registration and waiting technologies **[4, 16]**

Principle 6: Our hospitals will have protected, comfortable areas for staff
Showers for staff **[2]**
1. Gym for staff **[1, 2]**
2. Social and relaxation spaces for staff **[4, 16]**
3. Reduce overall space by providing a variety of work areas which reflect the work patterns and overall space needs of the workforce. **[4, 16]**
4. Consider the administrative areas being in an alternative setting within the community **[4, 16]**

Principle 7: Our hospitals will reflect our history and support local communities
1. Community hubs **[5, 16]**
2. Enhance the community it serves. The design must enhance its context, provide high quality public realm space, reinforce urban edge, have active frontage, facilitate transport interchange, and have community activity. **[4, 16]**
3. Materials and finishes will be selected that will wear well and look good over their whole lifecycle **[4]**

Principle 8: Our hospitals will be environmentally friendly
1. Energy demand reduction by using high-efficiency building envelope and glazing, high-efficiency mechanical and heat recovery equipment **[1]**
2. Water demand reduction by using low-flow fixtures, rainwater capture, high-efficiency food service equipment **[1]**
3. Use environmentally responsible materials and avoid materials that emit toxic fumes for better indoor air quality and reduced impact on public health **[1]**
4. Achieve excellence as a minimum in BREEAM* accreditation, with an aspiration to achieve Zero Net Energy and Carbon Neutrality. Striving for this will help to future proof the hospital, ahead of any future carbon taxes. **[4, 16]**
5. Sustainable heat and power sources to contribute to a drive to net-zero carbon **[16]**

Appendix 4. Limitations of this research

Our work took place over a period of 12 weeks, from July to September 2022. Given the short timeframe, the research team was limited in their capacity to perform a systematic, extensive in-depth analysis. In addition, our engagement workshops took place in August, which is a challenging time for stakeholders' availability and their ability to feed into the process of sharing their thoughts on the design principles.

As highlighted in the participant mapping section of this report, there was limited availability of demographic information in internal and external data sources. Some sources explicitly collected and reported demographic characteristics, some sources implicitly covered some demographics (e.g. a member of an organisation representing people with Dementia); and some sources did not report demographic information at all. This lack of demographic information meant we were not able to accurately quantify the representativeness of the Trust's data. As we could not compare the Trust's data to demographic information about the Trust's staff and local population (Appendix 6), we were not able to say with certainty that the Trust's data is representative of its population and staff. The inclusion challenge and recommendations for future engagement are outlined in Appendix 5.

Despite these limitations, the research team is confident that they have reached data saturation in relation to the themes discovered during analysis relating to users' experiences of visiting hospitals. This is supported by recurring, common themes present in both the internal and external literature.

Appendix 5. The inclusion challenge

How inclusive is the Trust's data?
The Trust's engagement reached a good range of staff, carers, patients, friends of patients and community participants. At least 649 people have been involved in the engagement, consisting of 375 members of staff; 140 patients, carers, friends of patients; and 134 community participants. We know there are more people that have been involved to-date, but this number is the number recorded in the Trust's sources and not all data sources provided information about participants.

There were many ways for people to be involved and as such, many different viewpoints were included in the Trust's data. This included, for example, engagement with the BAME staff group; people from different ethnicities and religions; people with physical, mobility or sensory impairments; as well as people with dementia; autism; learning disabilities; and chronic conditions. Although we have data about the characteristics of the Trust's population and staff (Appendix 6), we do not have full records of the characteristics of the people who were involved in every piece of engagement. As such, we can not accurately quantify the representativeness of the Trust's data and we are unable to say with certainty that the Trust's data is representative.

External Data
We looked at user engagement for hospital visits in external data sources across Emergency Department; Urgent Care and Inpatient wards at a range of hospitals across London, Birmingham and across other parts of the UK. At least 725 people from a range of groups were included in the sources we reviewed, consisting of 676 service users; 49 carers and staff. Similarly to the internal data, we know there are more people that have been involved to-date, but not all data sources provided information about participants.

External sources had a similar spread of groups involved, and also had challenges in being as inclusive and representative as possible. Importantly, the data from external sources very closely matched and corroborated the themes we had discovered from the Trust's data. From analysing external sources, we did not find any new themes we had not already discovered in the Trust's data. Given the consistency between our external literature review, our internal literature review and design principles, and the relevance of our identified points to missing voices, we do not feel additional literature review is required. We have confidence that the Trust's data, and the design principles we developed from them, are valid, inclusive and adequately representative.

Our design principles therefore provide a strong foundation on which to proceed with further aspects of engagement and design tailored to specific demographics highlighted as underrepresented in our data such as: people whose ethnicity is other than White British; people whose religions are Christian, Hindu, Jewish, Muslim and Other religions; people who identify as non-binary or transgender;

and those with autism, those who have had a stroke and other neurological and long term conditions.

Lessons for the future
Overall, the Trust's engagement and engagement from external sources shows that a high degree of inclusion and representativeness is difficult. Bearing this in mind, there are some ways in which we can do better in future with inclusion and representativeness. The first is by having a deliberate focus on capturing better data around people that are involved. We want to make sure future engagement is capturing information about people's characteristics, and other things such as socioeconomic status, age, health conditions in order to measure equity. Secondly, we recommend that engagement processes begin by taking the time to map out the patient and staff populations, and other key populations and subgroups, and building engagement strategies and processes to be deliberately inclusive and representative. Finally, it is important to build in adequate time and resources for engagement design to be deliberate and documenting characteristics.

Appendix 6. The Imperial College Healthcare NHS Trust local population and staff characteristics

The Imperial College Healthcare NHS Trust Annual Patient Equality and Diversity Report 2021/2022 outlines the characteristics of the population that Imperial College Healthcare NHS Trust serves. Findings from this report are briefly summarised in this section.

Ethnicity - According to the London census data (2011), 45% of the local population are white British people, with a total of 60% identifying as white (includes white British and white other); 19% Asian/ Asian British and 13% Black African, Caribbean or Black British.

	London data 2011	Trust data 2019-20	Trust data 2020-21	Trust data 2021-22	FFT respondents 2021-22
Asian, Asian British	19%	10%	13%	14%	15%
Black African, Caribbean, Black British	13%	10%	22%	12%	10%
Mixed multiple	5%	2%	3%	2%	4%
White British	45%	39%	26%	26%	63%
White other	15%	NR	14%	14%	NR
Other	3%	15%	12%	7%	8%
Irish			2%	2%	
Not stated			8%	22%	

Age - The 2011 census uses different age brackets to the Trust therefore it cannot be directly compared. The age structure in local boroughs has a larger working age population and a smaller number of children and older people. This trend has historically been reflected in the patient population. Patients who complete the FFT test are a subset of the Trust patient population. In terms of age, similar trends as the London and Trust wide populations were noted, with more working aged people completing the FFT survey.

	London data	Trust data			
	London 2011	FFT respondents 2021-22	Age (years)	Trust data 2019-20	Trust data 2020-21	Trust data 2021-22
0-15 yrs	5%	3%	**0-17 yrs**	7%	6%	10%
16-29 yrs	44%	16%	**18-39 yrs**	22%	31%	34%
30-44 yrs	24%	21%	**40-59 yrs**	21%	20%	16%
45-64 yrs	18%	30%	**60-79 yrs**	23%	36%	32%
65-85 yrs	8%	25%	**80+ yrs**	20%	7%	9%
85+yrs	1%	5%				

Biological sex - The UK government defines sex as: referring to the biological sex of an individual as determined by their anatomy; it is something that is assigned at birth and generally male or female. With reference to our use of the word in this context, biological sex refers to the sex that is assigned at birth. Women are overrepresented in the patient population when compared with the London wide data. This pattern has remained consistent and may reflect the women's services offered in the Trust including maternity and gynaecology. Patients who complete the FFT survey are similar to the wider patient population in terms of biological sex.

	London data 2011	Trust data 2019-20	Trust data 2020-21	Trust data 2021-22	% of total FFT responders
Man	50%	40%	38%	40%	42%
Woman	50%	60%	62%	60%	57%
No response					2%

Gender identity - Gender identity was not collected in the 2011 census, nor is it collected in the wider Trust population at present. It is estimated that there are between 200,000 - 500,000 people in the UK who identify as Trans or non-binary (Gov.uk 2018), with Stonewall suggesting this is nearer to 1% of the total population. The FFT does include a question about gender identity. The number of people who recorded non-binary or transgender was less than 0.1% overall.

	FFT responders 2021-22
Male	39%
Female	60%
Non binary	0%
Trans man/woman	0%

Disability - Trust disability data cannot be reported for the general Trust population, as patients can use free text and not select from a predetermined list. This makes it difficult for reporting purposes. The FFT question regarding disability is a closed question with a free text option. Almost half of patients (43%) who completed the FFT survey described themselves as having a health problem or disability that has lasted at least 12 months, with 19% describing this limiting their lives a lot.

Disability FFT Response	FFT responders 2021-22
No	54%
Prefer not to say	2%
Yes limited a little	24%
Yes limited a lot	19%

Religion - People were more inclined to share their religion when completing the FFT survey. Most notably is the 'not applicable' selection for the trust wide

patients. Only 8% of those who completed the FFT survey preferred not to disclose their religion.

	Trust wide 2021-22	FFT respondents 2021-22
Buddhist	0%	1%
Christian	13%	47%
Hindu	1%	4%
Jewish	0%	2%
Muslim	5%	11%
No religion	1%	21%
Other	0%	5%
Sikh	0%	1%
Prefer not to say	0%	8%
NA	78%	

Sexual orientation - The ONS reported that the number of people aged 16 years and over who identified as heterosexual or straight was 93.7% of the population with 2.75 percent identifying as LGB (lesbian; gay; bisexual). The Trust does not currently collect this data however the FFT survey does. A similar trend with the FFT respondents was noted although the percentage who identified as heterosexual or straight was smaller.

	FFT respondents 2021-22
Bisexual	1%
Gay/Lesbian	3%
Heterosexual/ straight	87%
Other	1%
prefer not to say	8%

The Imperial College Healthcare NHS Trust staff characteristics

Ethnicity - People of White ethnic origin make up 38% of the Trust's staff and 56% of staff are from non-White ethnicities. This data shows there are a wide range of ethnicities represented amongst the staff at the Trust.

Ethnic Origin*	Headcount	Percentage
White - British	3,366	23%
White - Irish	385	3%
White - Any other White background	1,755	12%
Mixed - White & Black Caribbean	117	1%
Mixed - White & Black African	95	1%
Mixed - White & Asian	137	1%
Mixed - Any other mixed background	240	2%
Asian or Asian British - Indian	1,234	8%
Asian or Asian British - Pakistani	325	2%
Asian or Asian British - Bangladeshi	195	1%
Asian or Asian British - Any other Asian background	1,541	11%
Black or Black British - Caribbean	592	4%
Black or Black British - African	1,784	12%
Black or Black British - Any other Black background	416	3%
Chinese	219	2%
Any Other Ethnic Group	1,275	9%
Undefined	442	3%
Not Stated	413	3%
Trust Total	**14,531**	**100%**

The Trust's ethnicity data amongst staff also shows that ethnicity representation varies widely depending on the Staff Group. For example, almost 60% of Senior Managers are White compared to 38% from a BAME background; and 60% of Admin & Clerical staff are BAME compared to 37% White.

Ethnicity profile by Staff Group

Staff Group	BAME	White	Unspecified	Not Stated
Admin & Clerical	60.1%	37.2%	0.2%	2.5%
Allied Health Professional (Qualified)	40.1%	58.9%	0.0%	1.0%
Allied Health Professional (Unquali...	63.4%	31.7%	0.0%	4.9%
Ancillary	77.7%	17.4%	0.0%	4.9%
Doctor (Career Grade)	59.3%	37.0%	0.0%	3.7%
Doctor (Consultant)	37.7%	58.1%	0.0%	4.2%
Doctor (Training Grade)	49.5%	46.3%	0.0%	4.2%
Nursing (Qualified)	63.9%	34.4%	0.0%	1.6%
Nursing (Unqualified)	75.5%	23.5%	0.0%	0.9%
Pharmacist	60.9%	38.4%	0.0%	0.7%
Physician Associate	50.0%	50.0%	0.0%	0.0%
Scientific & Technical (Qualified)	57.0%	39.1%	0.1%	3.8%
Scientific & Technical (Unqualified)	71.3%	26.1%	0.0%	2.6%
Senior Manager	38.2%	59.9%	0.0%	1.8%

Ethnicity representation also varies widely depending on Division.

Ethnicity profile by Division

DIVISION	BAME	White	Unspecified	Not Stated
Capital Summary	72.0%	28.0%	0.0%	0.0%
Direct Recharges Expend/Income	0.0%	100.0%	0.0%	0.0%
Division of Medicine & Integrated Care	59.3%	38.6%	0.0%	2.1%
Division of Surgery, Cancer & Cardiovascular	57.9%	39.9%	0.1%	2.1%
Division of Women's, Children's & Clinical Sup...	56.4%	41.3%	0.0%	2.3%
Estates Directorate	75.4%	20.1%	0.0%	4.5%
Finance Directorate	56.3%	40.6%	0.0%	3.1%
Human Resources	50.0%	47.5%	0.0%	2.5%
Ichnt Balance Sheet	0.0%	100.0%	0.0%	0.0%
Information & Comms Technology	58.6%	38.4%	0.0%	3.0%
Medical Director Summary	43.7%	55.1%	0.0%	1.2%
Nhs Elect	15.6%	84.4%	0.0%	0.0%
Nursing Directorate	37.0%	61.6%	0.0%	1.4%
Office Of Chief Executive	34.0%	64.1%	0.0%	1.9%
Other	0.0%	100.0%	0.0%	0.0%
Pandemic Planning	82.6%	17.4%	0.0%	0.0%
Pathology	67.3%	28.2%	0.0%	4.5%
Press & Communications	38.1%	61.9%	0.0%	0.0%
Private Patients Directorate	68.1%	30.0%	0.0%	1.9%
Rd Medical Directorate	47.3%	49.5%	0.0%	3.2%
Rd Medicine Division	38.3%	55.3%	6.4%	0.0%
Rd Surgery & Cancer Division	50.0%	46.7%	1.1%	2.2%
Rd Women And Children Division	44.0%	52.0%	0.0%	4.0%
Redevelopment Programme	44.4%	55.6%	0.0%	0.0%

Age - The majority of the staff at the Trust are aged between 26-30 (15.3%) and 31-35 (16.6%). As the graph below shows, there is at least 10% representation amongst staff for age groups up to the 51-55 age group.

Workforce profile by Age Group
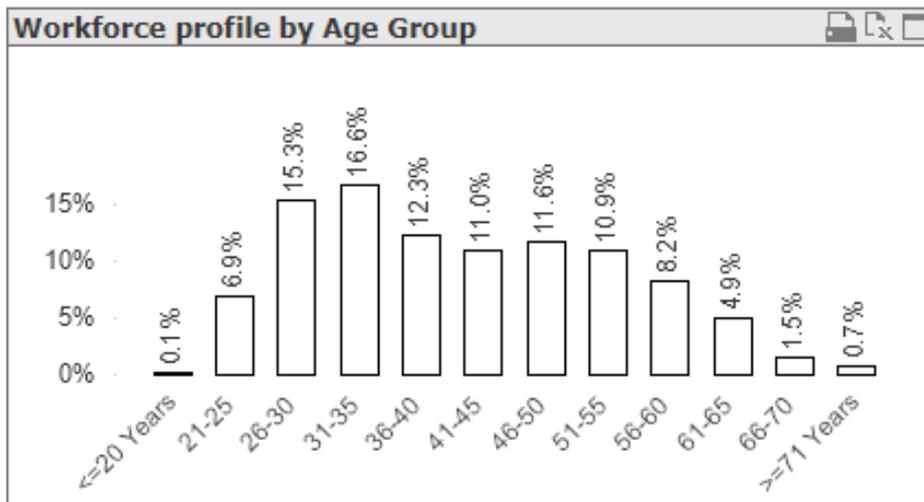
Biological sex - The Trust's workforce is 71% Female and 29% Male. This representation is reflected when looking at Band Profile data by gender, as women are 24% to 60% more represented across Bands than men.

- Band 2 to 4 - male 32%, female 68%
- Band 5 to 6 - male 20%, female 80%
- Band 7 to 8a - male 22%, female 78%
- Band 8b to VSM - male 38%, female 62%

Gender identity - No information is available about the gender identities of staff at the Trust

Disability - Across the Trust's workforce, 3% of staff have a disability.

Religion - Christianity is the most widely represented religion at the trust with 46% of staff identifying with that religious belief. Islam is a religious belief held by 10.3% of the Trust's staff, 5.1% hold Hinduism as their religious belief and 10.4% of staff are atheists.

Workforce profile by Religious Belief
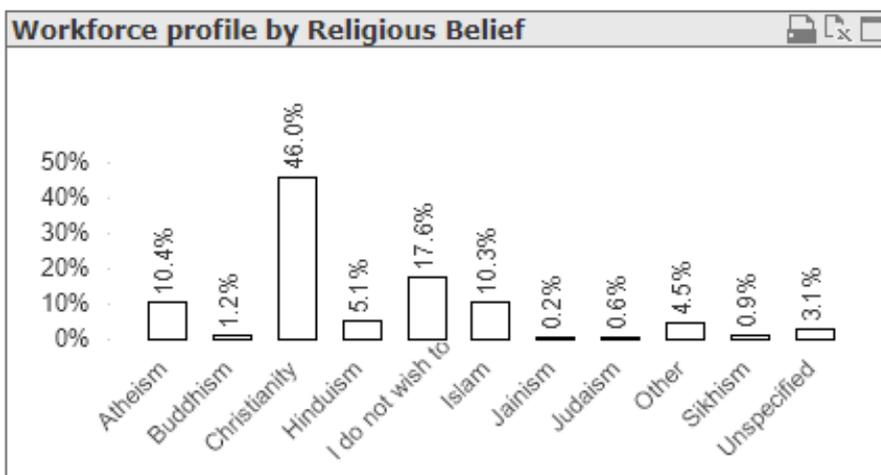
Sexual orientation - The majority of the staff at the Trust identify as heterosexual (76%), with 2.5% of staff identifying as Gay or Lesbian and 1.1% identifying as bisexual.

- Bisexual - 1.1%
- Gay or lesbian - 2.5%
- Heterosexual - 76.0%
- Not stated - 17.2%
- Unspecified - 3.2%