



Welcome

I am excited and proud to submit this entry for the Wolfson Economics Prize 2021 on behalf of the Caring Collective, which has been formed to address the challenges of planning and designing the hospital of the future. As a collaboration between 34 built environment experts and creatives, global technology leaders, global wellbeing leaders, global development consultants, global hospital designers, and global economists we have come together specifically to address this important challenge.

The COVID-19 pandemic has highlighted the challenges of climate change, biodiversity loss and structural inequalities as interconnected, and that our healthcare systems are poorly prepared for shocks. To move beyond business-as-usual and accelerate the transformational change that is needed, we must think ambitiously and holistically.

Having studied the History, Philosophy & Communication of Science, as well as Urban & Regional Planning, I believe in the power of art and science when embraced together. In order to represent the many voices and viewpoints that have contributed to this vision for the hospital of the future, we have presented it as a script for a play, combining multi-disciplinary planning and design with the storytelling power of theatre.

I hope you find this vision as compelling and credible as we do and would like to say an enormous thanks to everyone involved. It has been the work of many hands with great diversity of thinking and a collaborative team spirit. We look forward to working with the Wolfson Prize team and our wonderful NHS, to help make a healthcare system fit for the future.

Max, Founder of the Caring Collective, June 2021

Introduction

During the past 18-months the world has lived through a global pandemic, climate change activism, major political shifts and a surge in computer-mediated and technological solutions. It has brought about the biggest shift in home-work life in centuries and it is a unique time of accelerated reimagination. We believe that nimble and embedded data feedback loops can guide the precision implementation and integration of technology as well as co-designed, adaptive and beautiful buildings that empower care workers and support holistic health.

We believe in the liberated hospital as the pinnacle of the nation's wellbeing and dignity.

The time is ripe for The Caring Collective approach. Our vision is for natural and beautiful environments that use technology to liberate us from the centralised and costly single-building model of healthcare - the hospital. As community creators, change accelerators, culture curators, storytellers, technology embracers, and carbon mitigators, we are perfectly in tune with the challenge 'who is the hospital for'? The Caring Collective is well equipped to reimagine and actualise solutions that consider rapidly changing agendas and address the question 'what is the hospital of the future'? We are steadfast in creating communities of wellbeing which are urban, human and nature centred environments. Places that promote health whilst soothing and

healing communities of carers and those in need of care. With these skills, we can adeptly contribute to the design of the new 'hospital' that can radically and efficiently improve patient experiences, clinical outcomes, staff wellbeing, and actualise integration with wider health and social care.

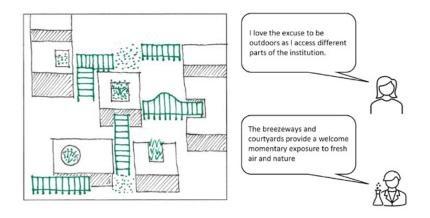
As a collective, we match professionals to projects and regularly collaborate with organisations outside of our virtual team. For the 2021 Wolfson Economics prize we were able to invite international leaders in healthcare and wellbeing design to our knowledge-sharing and creative-thinking workshops. This resulted in invaluable contributions and an exceptional mosaic of experiences and expertise. Additionally, our social scientist members conducted interviews with hospital staff and patients to deepen on-the-ground understanding. Our competition entry is based on the philosophical pragmatism of the collective. As a result of that approach, we are presenting an innovative and integrated solution that embraces the uncertainty of the future and the reality of constant flux and evolution.

Our submission is the combined work of 34 interdisciplinary experts who interweave the knowledge, experience, and skills needed for holistic thought leadership, planning and design. From specialists in semiotics to circadian colour light management and architects with portfolios that include world-class hospital design as well as landscape designers, our collective approach is about process and thought leadership that creates evolutionary outcomes. It is a hybridised model that blends human relationships and technological efficiency together.

We believe that the increasingly digital hospital is in a transitional stage. Before fully seizing the liberation that technology offers, enabling a dignified physical-virtual hybridised service, the hospital needs to redefine what physical presence a healthcare institution has in the city. The starting point of our submission is the ecology of relationships as seen through the eyes of an interdisciplinary collective of professionals who seamlessly connect on shared goals. We are a collective made up of autonomous individuals and small groups that thrive on collaborative achievements.

This not only describes us, but the multi-scalar and multi-sectional hospital.

The process of our work on the submission required many voices, and so it became clear that we should present it in the form of dialogue, interaction, and a visualised setting. Hence, we invite you to our playscript comprised of the Caring Collective welcome from the Founder Max, an introductory list of characters, the setting as a reimagined hospital concept, storyboard illustrations that animate the setting, the exposition (the context and the challenges), ACTS I–IV, the resolution (our key themes for evolving solutions), and the appendix of expertise and experience.



Exposition

The Caring Collective

Ecologies of hybrid hospitals and holistic health

Central to our vision and values for the hospital of the future are the principles set out in Health 2040 – Better Health Within Reach (2018). These act as our mantra:

- · Health as the nation's primary asset;
- The health environment we live in and build together;
- Using emerging technologies to improve health for everyone;
- Effective planning for the future.

Our innovative ideas are based on the value we place on:

- Quality built and natural environments;
- Diversity and collaboration;
- Engagement and commitment.

We believe in the power of the collective to drive evolutionary processes and provide health and wellbeing for all. For this project, we have identified the values of **identity**, **security**, **connectedness**, **autonomy**, **meaning**, **growth & development** and **joy** as the foundations.

These are some of the fundamental questions we need to ask ourselves:

What does change look like within the context of emerging from the Covid-19 pandemic, social restrictions, and economic turbulence? How can change positively impact optimism and trust?

Do we believe in the trajectory of increased institutionalisation? Or, the medicalisation of health as a result of dramatically living through a pandemic, where hospitals and care workers were 'frontline' in the 'war' against contagion?

Or, do we take the path of prevention and holistic care learned from glimpsing through the pandemic rupture, to see society's undiluted vulnerabilities, needs and values?

Who are the gatekeepers to each response-led next step? Is there a mid-way, and if so, what does that look like? Is it about "bringing the sensibilities that we know are good and work in other sectors into the hospital?"

The polar differences between these worldviews highlights the dichotomy between humanistic and scientific approaches to individual and societal health, and the consequences of adopting one at the expense of the other. Health at home and wellness in the community, as preventive practice, could result in the hospital as a place of acuity. A ghettoised building of dramatic intervention. Who would truly like to work at such a place or would visit it feeling calm and empowered?

The barriers to change might stem from the mindset 'but this is a hospital' in answer to the much-needed collective conversations of what change could look like in humanistic terms. If we could disaggregate the hospital and metaphorically 'take the roof off', we could disentangle ourselves from the intensity of a hospital from the pandemic memory. By mindfully listening to the next generation whilst reflecting on the established way of doing things, we may seize a perfect moment in history to create hospitals that are fit for the future economically, environmentally, and socially.

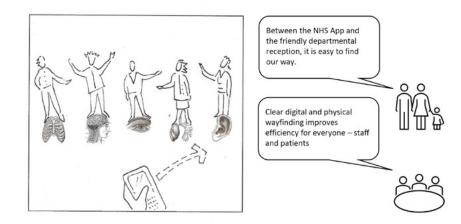
The application of replicable thinking to each campus, traditional location, city-sited, community, research, or specialist hospital would create ecologies of care that inject confidence, autonomy, values, and purpose creating **total healthcare**.

If we 'go-local' instead of centralising each hospital, its health-focused community can reach aspirations similar to private healthcare where the "most important thing for a patient are nurses who smile... so the building they work in has to make them smile". To give and feel that smile, the hospital needs to become a place of multiplicity that provides:

- A civic beacon in a community (incorporating the gym, library, swimming pool)
- 2. A place of technical excellence seamlessly utilising artificial intelligence and robotics providing autonomy to patients and support to staff
- 3. The priority of emotional and social care
- 4. A decentralised and centralised hybrid
- **5.** A constellation of settings with healthcare in hubs
- **6.** Systematic integration
- 7. An inclusive place of diversity

But if "we can never fully predict the future" ² how can we co-create the hospital of the future? What are these vital – and on-going – conversations going to be like, where will they take place, and who has a voice?

In answer to the question as to how we, the Caring Collective, would design the hospital of the future. We would use the agility and creativity of collective thinking and co-design. The 34-strong crew of thinkers and creatives shared dynamic and horizontal practice to explore the question. This process, founded on expertise in innovation, drew on realities and aspirations gleaned from twenty hours of semi-structured interviews with design and behavioural specialists and fifteen interviews with hospital staff and patients. To present a coherent, comprehensive and engaging answer we created a four Act play, the Caring Collective, that meshes together the many voices involved.



Characters

Nurse Petra

If incentives and funding were flexible and prioritised, then referral pathways (patients to doctors and care teams) would save an incredible amount of waste in these areas due to the present lack of coordination and data in the right place.

Hospital Nutritionist

I'd focus on bringing in communal eating if possible, even on a ward, so patients can gather and eat together whilst listening to music. Communal eating may assist with healthier patients helping those around them. Whatever the dream is, there needs to be enough staff to make sure things are accessible and can happen.

Hospital Biochemist

The NHS could halve its budget and reduce by 3/4 its carbon footprint if it installed easily usable and locally controlled thermostats instead of having heating on full blast and windows wide open all year round.

Hospital Researcher

We only have one meeting room for a building with 600 people and frankly there are only so many Teams meetings one can put up with.

Clinical Psychiatrist

They've dedicated a whole floor to a running track and an art gallery in the new hospital we've moved to, at the cost of dramatically reducing office space. We cannot run a service without enough office space.

Snr Mental Health Practioner/Researcher

Relationships are critical to living well in recovery. By generating qualitative and quantitative data, studying it, and acting on it in repeating cycles it means there is continual improvement in codevelopment with service users and their surrounding relationships.

Patient Child & His Mother

Child: I would have loved the sound of water, like a waterfall, and a hologram nurse to always be there when my mum wasn't.

Mother: The nurses were so kind, but it was hard to relax as it was noisy, and when nurses changed shifts, it seemed that I had to be the one to update them and 'join the dots' for them.

Expectant Mother & Partner

When waiting for my son to be born, we walked around the hospital a fair-few times and although it was interesting, it would have been nice if there had been green outside and a peaceful place to go.

A&E Patient

You sort of end up with an institutional mindset where you expect the experts around you to tell you what is going on, but you actually have to ask at every turn. Could you create a hospital that felt empowering?

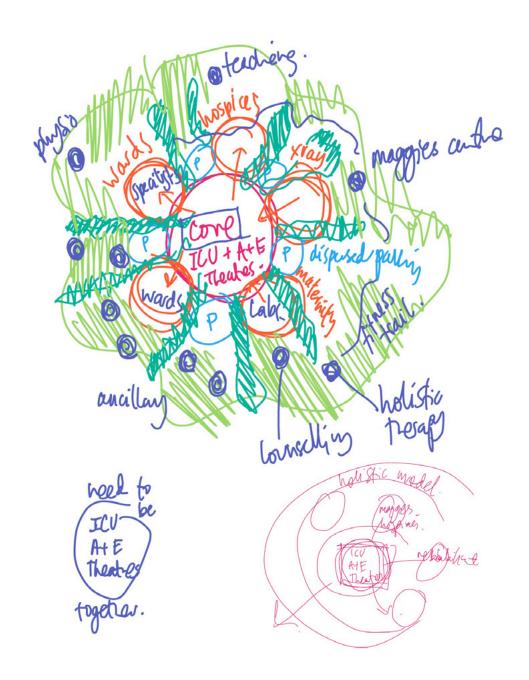
Outpatient

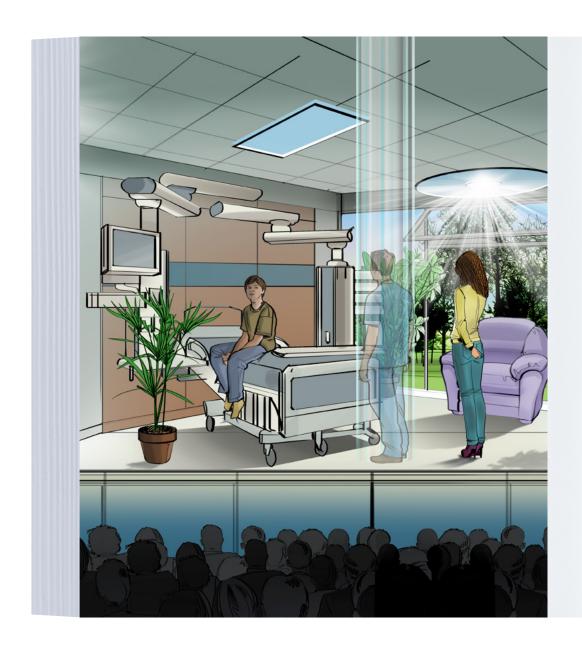
There's just nothing nice about hospitals, they make you feel worse than before you went in. There are too few parking spaces and the waiting rooms are always atrocious. It adds up to an environment of a patient feeling unwelcome and anxious.

The setting

Taking the roof off!







A Children's Ward in a Kent Hospital, 2025

An 11-year-old boy sits in a single bedroom which has its top windows open letting in the sound of leaves rustling in the breeze. He is humming softly to himself as he takes off his shoes and puts them at the bottom of his wardrobe. He smiles to the hologram welcome nurse who joins in with the humming and adds a few top notes. The boy giggles. There is a polite knock on the door a pause and then moments later the boy's mum enters the room.

MUM: Wow, that was easy. Such a smart idea to have the car park on levels right next to each ward floor. Then I easily found you by using the singing stepping-stones pathway and then to Yellow 1 (grinning). I could never remember the names of the old -style wards and was always so confused if it was 'Winterden' or 'Waldringfield' ward I was looking for. I always used to feel so intimidated.

SAM: (sitting in a single room with the hologram of a nurse fading out) **Yes mum!** (sighs with quiet relief). **So much better than when you brought me into hospital with my appendix problems five years ago! You spent ages trying to find me again after parking the car 'properly'. I thought you'd be... lost... forever (mumbling the last few words).**

MUM: I know, it was so stressful, you were only six then. How are you feeling now?

A Children's Ward in a Kent Hospital, 2025

SAM: OK (smiles gently) I've been fine with the hologram welcome nurse here the whole time to make sure I am not scared.

MUM: It's so peaceful in here, Sam. Did you choose the soundscape of waterfalls and the soft orange lighting? It's lovely to have such privacy too.

SAM: Yes, with the help of the welcome nurse. He's very kind. He reminded me how granny uses the colourful lighting to help her feel less anxious and sleep better in her intergenerational No-one Alone home.

MUM: (sighs gently in a relieved way) Have you got your Fitbit with today's readings on to show the nurse practitioner or the doctor?

SAM: I don't need to show them mum! (laughs) They already have my readings. It's automatic

2

and saves hours of hunting for files you know. Our community GP sent them to the registrar yesterday after our video appointment. They know everything and there's a doctor on her way soon. Apparently, she's just been having a swim with her family in the rooftop hospital pool during her break.

MUM: It saves so much time and worry because there wasn't any need for you to go to outpatient first. It's like being able to fast-track straight from the community GP to this ward...(pause) It's so empowering! (pause) I'd like to have a dip in the pool soon, too. Once you're checked and all better of course! It's such a soothing place to swim with the bamboo and silver birch trees all around. I think I have four more free Healthy Lives swims left this month, too! But Sam, how are you feeling now?

A Children's Ward in a Kent Hospital, 2025

SAM: Not scared any more, but I know something isn't quite right as I have a pain that won't go away in my lower intestine. My back hurts too, but maybe that's because I didn't warm up enough at my running club yesterday.



Knock on the door and Doctor Sara comes in wearing a track suit and damp post-swim hair neatly tied up.

4

DOCTOR SARA: Hello Sam and Nisha, my name is Sara and I'd love to find out more about you. We have your Fitbit digital readings from yesterday. It's good that you are here to get reassurance and so we can plan together your next health steps. I like the soundscape choice, is that yours, Sam?

SAM: Yes, it is (smiling). It's good to get reassurance thank you. I've been worried and didn't sleep at all last night because of a constant low-level pain near my kidneys.

DOCTOR SARA: I am impressed with your anatomy knowledge Sam. Your school and community health teams are working well together so everyone understands what is inside our body and what it does to keep us well. Let's go for a little walk to the aromatic garden. Are you ok to walk gently?

A Children's Ward in a Kent Hospital, 2025

MUM: How does that sound to you Sam? The garden is just next door, I passed it on my way in. It's by the parents' overnight rooms and showers. The garden is a micro-climate on a big balcony so there is no need to leave the ward floor.

SAM: Sounds like a good idea... and I can come back here quickly if I need to?

DOCTOR SARA: Yes of course, but it's such a soothing place it will help with your anxiety, which could help with the pain. We have some nesting blackbirds there now. Come on, let's listen to their evening song together. I finish my shift in an hour and so maybe Doctor Jay or practitioner nurse Tom, who are the night team can join us in the garden before I go.

MUM: That sounds so good, thank you.

DOCTOR SARA: And if we are hungry or thirsty

6

later, we could have some food delivered to the garden or your room via the #foodturistic app service from local restaurants and school kitchens we partner with. You could download the app now so you can easily order whenever you like. Or, if you're in bed, there is a button for the waiter robot to help you. They're great for those who need to feel a little more TLC.

MUM: I've heard about the #foodturistic app and how hospitals are using it to work collectively with school and restaurants to give healthy eating options.

DOCTOR SARA: We still have our hospital restaurants too scattered all over the building on each floor, but at night-time the app is the most popular. It's such a good idea that the school kitchens can be used at night for the hospital and during the day for the school community.

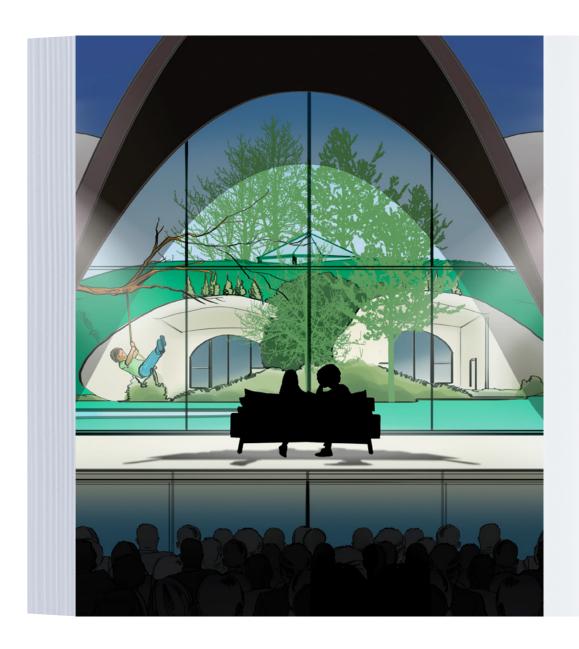
A Children's Ward in a Kent Hospital, 2025

MUM: Yes, I know some of the restaurants here at the hospital, we're trying them all out. We came to the one near the swimming pool, 'The Hanging Garden' diner for my birthday last year. Do you remember that Sam?

SAM: Yeah, of course, I had the tastiest pakora and sag aloo, almost as good as yours mum!

DOCTOR SARA: (laughs quietly) Sounds like you're getting your appetite back Sam, maybe you are beginning to feel less anxious already?

8



A Maternity Ward at an Oxfordshire Hospital, 2030

A couple in their 30's sit in a plant-filled alcove on a sofa together in a small communal sitting room. They are holding hands as they look out of the window to the children's treescape area where children are playing on the rope swings. Beyond the playing children there is the hospital community green where the weekly farmers' market is filled with stallholders, shoppers and large communal tables with some families eating together. On the other side of the room is a walk-in equipment cupboard shared with three other delivery suites.

DES: Maybe I pop over to the market to get us some lunch to eat here or perhaps on the roof terrace? There might be hospital honey for sale up on the roof too. It won't take long as I'll use the Hospital Walkability Pathways. I keep forgetting I am in a hospital there are so many places to buy great food here. Then we can go to one of the gardens to eat at the communal tables.

PATIENCE: Maybe... I'm not hungry though (pauses and then rubs her full term rounded belly). It's a great market, not just local grown but all kinds of my favourite ingredients with ethics credentials you know. (breathing deeply and slowly). Maybe we go next week. Let's have some restful sounds on... Alexa... relaxing and soothing soundscape please (sounds of crickets chirruping and soft percussion start and Patience sighs and leans back into the cushions).

A Maternity Ward at an Oxfordshire Hospital, 2030

DES: What are your readings like, love? Have we time for a walk, if you feel like it? There's the musical garden that is on this floor that you love. So clever how plants can make sounds when the wind blows or the rain falls (pauses and looks at Patience). Apparently, the shape of the leaves triggers neurological response that increases our sense of wellbeing! Can you believe that? It's so simple and doesn't cost thousands. Or we can go and listen to the pianist in the welcome area maybe? We've scanned in and the community midwife has spoken with us via virtual cam and he checked your readings... and the birth team know we are here including the welcome robot porter who brought our welcome pack. The pack is a good idea don't you think? 'Specially as I forgot toothpaste.

12

PATIENCE: (eyes closed and humming gently quietly mutters) I'd like to see the new night-time light sculpture everyone is talking 'bout. But let's wait for the birth team to come and say hello in person. We can see the lights from the window too, if we don't get a walk today.

DES: Yes, it's where the old car park used to be. I heard it looks better at night, we might be still here tonight. I'm happy that we chose to come to our hospital instead of taking the stay home birth option... maybe next time. It'll be good to see familiar faces. Do you remember when your sister Laura had Chloe five years ago before the hospital changes? Poor Leroy thought he'd lost her after he went to get her overnight bag from the car! Then when he got back to the ward... after an hour of pinging about in all those old confusing tiny corridors (tuts) he got back to

A Maternity Ward at an Oxfordshire Hospital, 2030

the ward of eight women and didn't recognise his own wife in bed! He was shaking so bad from nerves we could hardly understand him on the phone, poor Leroy. He could have done with the new dial-in from your car system to let them know he was going to need help navigating his way back.

PATIENCE: Poor Laura too! It's unimaginable now. Funny... it's only been 5-years since evolution design began. It saves enough money for hospitals to make the changes they have dreamt of. It's like the hospital director said on the news, 'We're not short of good ideas, it's how to make them happen that's the problem.'

DES: (looking through the window at the children playing) **And now they are making them happen.**No more car parks dominating our whole experience of the hospital or reducing air quality

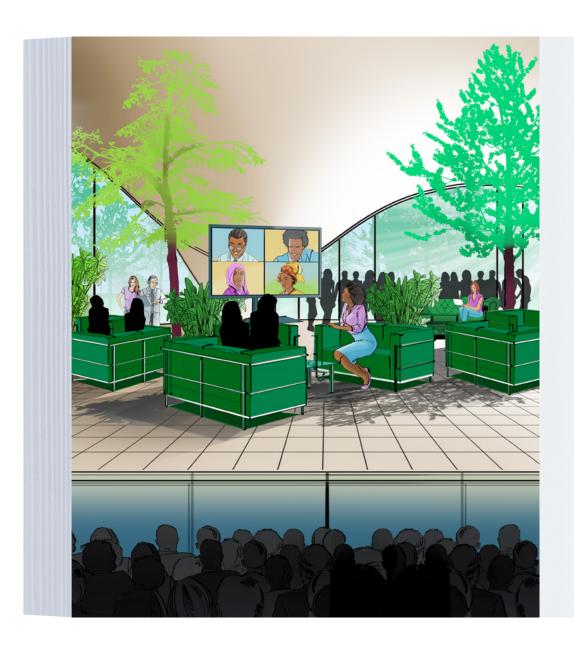
14

so windows can't be opened. Our hospital is truly more empowered. And now we can personalise our hospital experience before we come by monitoring foods we ate at home and our recent sleep patterns, so we get better quicker. We rarely stay long enough to add costs to excess bed use. It saves hundreds of pounds getting us home quicker... quicker and happier.

PATIENCE: Laura and Leroy could have both done with the aromatherapy massage I had when we walked in this afternoon too (she looks at her wearable contraction monitor on her wrist and breathes in and out heavily). I'm going to check to see if the team is ok with the readings they're getting from my wear-it-baby monitor. Things are picking up darling, not long now...



16



A Large Meeting Room in a Central London Hospital, 2028

The meeting room is a science café seating of clusters of tables and chairs, a sofa in the alcove, and some pod seating units for break out conversations. The room is filled with plants and the windows are open wide looking onto the hospital kitchen garden. There are twenty hospital staff and living-lab researchers sitting around the room drinking welcome drinks. A group of ex-patients catch up near the sofa, local government and community representatives move around the room and a bank of screens for community members and a wider group of staff join virtually.

DELPHINE – Practitioner Nurse: Welcome all and thank you for being here today on this unusually warm October morning. So good that each room in our hospital has its own thermostat so we don't have heating on full blast and the windows wideopen to cope with the excessive heat anymore.

MARNI – Design Evolution Lead: Yes (laughing) it makes such a difference to the bills and our health and we've reached zero carbon operations now. The use of the new bamboo walls with their antibacterial properties has dramatically cut down the UV cleaning robots' job too.

DELPHINE: So, on to science café chats and breakout pod time to discuss the topic of today's meeting (looking toward Marni). As you mentioned Marni, what can the UV robots do now instead? Charlie, do you want to tell us about the podcast as the introduction to this session?

A Large Meeting Room in a Central London Hospital, 2028

CHARLIE – Living Lab Researcher-Evolution Paths: Of course. Good morning all, I am speaking from the hospital research day-to-day care unit via video conference today as I wanted to show you some of the ideas that we're thinking through for the evolution path for our UV robot cleaners. The team here has made a six-minute podcast, available to all on the hospital evolution futures app. Have a listen and then we can start collectively thinking about the life of the building.

DELPHINE: And just to add a bit of information about the app, it's a collaboration between the hospital and the community via the open, transparent data collecting platform we've partnered with. It has shown some useful and up-to-the-minute illumination on changing feelings about sterile environments.

20

The room full of people settles down to focus on listening to the podcast using individual headphones or standing in soundproofed quiet moment bay areas. The lighting sensors, detecting stillness, but human breathing, change to dim eco-setting.

CHARLIE: So, now it's time to think together to make sure we are working toward zero carbon. The great modular design of 60% of the hospital means that we have flexible room design which allows us much greater freedom to evolve. Whole rooms can be literally removed and updated if need be. And because every room has underfloor electrical circuiting and removable wall plugs there's a gradual evolution to updating the modular sections. We are so much more empowered as a service compared to 10-years

A Large Meeting Room in a Central London Hospital, 2028

ago. We can make the changes that suit us here in our community hospital. As the community's caring collective let's think about the evolution of anti-bacterial cleaning robots.

Sitting in a breakout pod are Mikel (hospital community nutritionist), Rufus (anaesthetist), and Dimitrios (robot interface coordinator) with on-screen presence from Harry (headteacher of local Cuthbert Primary school).

CHARLIE: What I really would like to add to the discussion is the large increase in children with allergies in the school since 2021. The living lab team is doing evolving research on this worrying rise and what it means for long-term immunity health (as he looks down at some epi pens and inhalers in a tub on his desk). Can we think about

22

the need for evolving some of the arrival area's Covid-19 cleaning regime, especially as, since December, the book-in from your home or car system is up and running so efficiently. It has cancelled out people waiting or walking through a potentially high contagion space. Maybe not everyone needs to have the anti-bacterial treatment as standard. (he looks to the others in the small group emphasising with a slow and potent tone), especially children who are building their immune system response. (then adds more lightly) Maybe this is something the school can work on with the hospital researchers. I have some money in our school's healthy families budget to contribute.

MIKEL: I agree, there are stark figures emerging on challenged early immune development. Despite building immunity through diverse food A Large Meeting Room in a Central London Hospital, 2028

menus and social eating. The living lab team is co-designing the role of communal tables for meals on wards with us. It's already showing that social eating triggers stronger biological reactions to immunity, particularly for children and seniors.

DIMITRIOS: (looking puzzled) How does this all link to the UV cleaning robots though? The robot-human interface is working well, and now that the corridors are all much wider, we have brought in larger mobility pods which take up the jobs of moving larger equipment around the hospital.

MIKEL: (smiling at Dimitrios) Absolutely, the admin mobility pods stopped my six-kilometres-a-day walk linking admin and people just by uploading e-files onto the pod and then simultaneously taking them to the kitchen,

24

kitchen garden, community supermarket on the high street, the patient, and to me for patient food profiling exchange. It's always the personal touch that matters when sharing information, plus there is no chance of the intranet crashing at busy times or everyone trying to track down relevant information in a sea of data.

RUFUS: But as we all know, the hospital is an evolving design and so maybe it's time to apply the use of precision methods to the UV cleaning robots? They are definitely still needed in the operating theatre (sighs) and probably always will be needed... just like the drones who carry donor organs and blood nationwide. I hate to see the winding down of the infection alert sanitisation, but we all know it has to stay in operating theatres and ICU. But even though we know that this is a hospital its about using

A Large Meeting Room in a Central London Hospital, 2028

resources only where they are really needed.

HARRY: I like it, precision methods. What is that, is it like precision farming that uses data to focus on where to water, add more compost, or cover plants from frost?

RUFUS: Exactly (nodding his head enthusiastically). And it is something on the podcast that the Blue 2 ward team is co-designing with the living lab researchers.

26



Soft yet lively music begins to be play and gets gently louder. The small groups begin to disband and begin to turn toward the centre of the room where Delphine is sitting on an orthopaedic design 3D printed chair.

DELPHINE: Thank you everyone. After we make our decisions, we can try out the new Walkability Route that circuits our sixty green spaces to breathe slowly. By the way the community codesign landscape team just won a national

A Large Meeting Room in a Central London Hospital, 2028

award for this (raising thumbs up). It's particularly impressive as they used planting as part of Sustainable Urban Draining methods to take back some land that was always flooded. And it can be added into both Patient Journey Mapping and Care Provider Experience mapping libraries. So, now let's share ideas on the UV cleaning robots and choose next steps.

MARNI: Ok all, we have time to advance ideas and vote using either smartphones or the room voting touchpads (pointing to a bank of e-vote pads). We've had the UV cleaning robots for 3-years now. It's not a long time, but the evolving design team were aware of its short life, and as ever all the tech and parts are 100% recyclable or can be repurposed. So, we have three popular evolutions you messaged at the end of our breakout chats to explore (smiling at Charlie).

28

CHARLIE: The first idea is one that links into the co-design changes of the arrival space being a threshold to cross that feels familiar and calm. Part of that evolution is to minimise or be more selective about who needs entry sanitisation by adding data collection on the personalised entry app 'I'm Here Now'. The second idea is to recycle them into freight pods for Green 3, who are preparing for the seasonal Covid-19. Thirdly, and this is one that the virtual 100 community members unanimously suggested (pause), is to repurpose the UV robots within community care as there is a need for them in the No-one Alone intergenerational homes.

DELPHINE: Thanks Charlie. And just to add, Green 3 are trialling the new modular walls around each bed system this season. Plus, the arrivals design evolution is going to include natural ventilation

A Large Meeting Room in a Central London Hospital, 2028

and planting to help with regulating temperature and sensor aroma systems.

MARNI: It's going to feel so wonderful coming into work or to visit a patient when the first experience of entering is a calm space filled with de-stressing aromas.

DELPHINE: Ok, let us make our votes and then this information can be disseminated to research and finance offices and the wider caring collective nationwide network to see what other hospitals are doing.

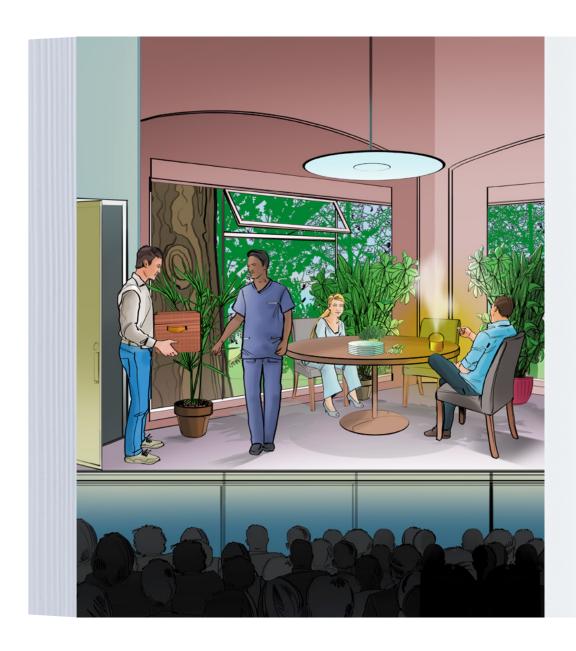
A powerful silence fills the room as everyone looks to their device to make their vote and after four-minutes Delphine raises her head.

30

DELPHINE: So, it's 25% for linking to the I'm Here Now App and friendlier arrival spaces, 42% for repurposing in the community and 30% for GREEN 3, with 3 abstainers. Thank you everyone.

CHARLIE: Thank you all (as he looks to the computer screens of virtual meeting members). We'll put this forward today for next evolution approval. Now for the walk. No need to wrap up as it's all under cover (smiling proudly). It's something for the whole community to enjoy and has been added to the Walk for Life app for community active leisure and it's on the local trail map art boards. So, tell your families and friends if they don't know already.





Staff Flat at a Suffolk Hospital, 2037

Two young nurses sit with a junior doctor around a large dining table surrounded by tall plants. The windows are open, and the breeze gently moves the blinds. The group sits chatting as the lighting gently changes to a yellow with a faint purple glow and one of the nurses activates the room's aromatherapy scent to lavender and rose geranium. On the table are a stack of plates and cutlery, small pots of parsley and basil, and a couple of smartphones.

RAVI: I love it here. It's been 18-months of living here now since I qualified. Having quality accommodation onsite was a game changer when I was choosing a career path.

DAVID: Yes, and having a home where rent is linked to pay scale makes so much sense. It's like being in a hotel-pital not a hospital at all living here. Everything is so convenient and there's no commute.

RAVI: And even a running track, it just makes so much sense and really helps to unwind having a run after each shift. It also changes the whole unfriendly feel it used to have at night. A lot of the older patients have recently been involved in a study about anxiety-reduction and loneliness and its connection to recuperation. Apparently, seeing life happening from their windows helps

Staff Flat at a Suffolk Hospital, 2037

feelings of being connected – (smiling broadly) particularly if it's my familiar smiley face passing by after a swim in the pool here hey!

TOR: It's great for now for sure, but also that there is the option to move away, yet still be on cycling and walking routes that link to the hospital's walkability paths. I'm thinking of getting involved in some of the Health on the High Street hubs too, so maybe I'll transition to working within the dementia team on Fork Road... then I could apply to live in a No-One-Alone intergenerational home too!

2



The doorbell rings and Ravi stands-up to open the door.

DAVID: It must be our dinner. Great that Sam could pick it up for us from the community evening

Staff Flat at a Suffolk Hospital, 2037

café. One of us can pick up some extra from the #foodturisitic healthy vending machine later if need be, they have great summer smoothies at the moment.

SAM: Hi all. Food's here (coming into the room with a large picnic basket). There's a seasonal special and I got enough for us all tonight. It's food that'll help us to sleep, too. Sweet potato and nutmeg pie with all kinds of other stuff in it. Smells so good... how's everyone? How have your days been? Sorry I am late just needed a shower on my ward floor before I collected our order.

TOR: Mine's been busy, but I feel ok. There was a lot of back-and-forth, but being able to walk in corridors filled with natural light and plants doesn't make me end a shift feeling like a mole desperate for light and air! It was doubly good

today as I was helping the physio team with their garden exercise classes. (Everyone laughs and nods their head knowingly)

TOR: I'm really looking forward to the new layout design from the Evolution Design Team collaboration with the hospital researchers.

RAVI: What's that then, is it a part of the Building Can Learn thinking with each room and area... even each bed... able to store and communicate its use to a centralised data point? Thinking that is specific and replicable.

TOR: Yep, that's right... (dishing out food onto his plate) it's the Feedback Loops that were implemented four years ago that are helping the hospital evolve its rooms and flow of people, things, and timings.

Staff Flat at a Suffolk Hospital, 2037

DAVID: It sounds so obvious, a bit like the hospital being like a Formula One pit stop, everything and everyone is ready to go and then the pit stop adapts to the next car because it has the ability to change using Virtual Reality (VR) embedded in practice and robots to prepare rooms.

RAVI: And it saves so much time and money and it's so good to feel prepared and that tech is integrated to help make our jobs easier. It's clever to look at other types of workplace for inspiration. I'm loving the app that lets me in on the meetings via the app's project analytical platform. It's where I can add my thoughts, and because I am kept in the loop, I trust how changes and developments are decided... as I am part of the decision making.

2

TOR: And there are better results for patients and the budget, too. So, the new design... (scratching his chin) although the robot mobility pods are doing a great job, they've come up with a design where the new hospital in Norfolk will have a central area of treatment and operating theatres are then like arms coming out (he draws lines with his finger in the air). The overnight, short, and long stay wards come out from the centre.

DAVID: So, the pods don't have the 6-kilometre walk per day either!

TOR: Exactly. And it uses the Building Can Learn on-going research to design flexible rooms that can adapt in size by using modular walls to keep up with the ever-changing size of equipment and technology.

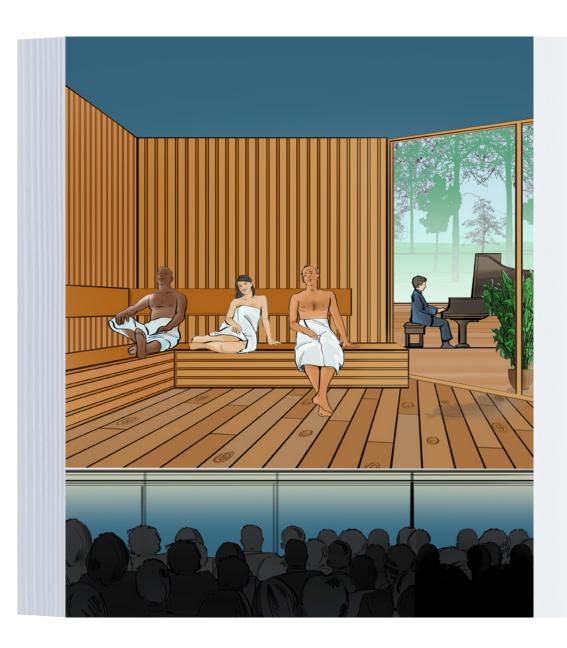
Staff Flat at a Suffolk Hospital, 2037

SAM: It just keeps getting better. I've been a nurse for 15-years and the difference is unbelievable. Changes to patient referral pathways were the first things that I noticed back in 2024 when patient pathways were projected and then the GP booked the patient into the hospital. A lot of it is down to joined up thinking, it's called Complexity Science. It basically means that data is integrated in real-time and is useable.

DAVID: And as part of that evolution, there's patient responsibility for looking after their own data and health plans. It makes it all much more efficient and personalised because of wearable devices being linkable to hospital data systems as and when needed.

TOR: (laughing) We can be carers instead of admin, medicine and bed hunter-gatherers hey!

2



The Seaside Town of Felixstowe on the East-Coast, 2040

Three middle-aged men and women sit together in a well-being spa sauna chatting. They work together. The spa is their after-work stop-off three nights per week, as it's a short walk from the bus station, plus it's part of their work package to have free wellbeing activities and health checks. The sauna is filled with the smells of the wood plus mint and chamomile scents waft in gently. There's no music but through the sauna window a pianist can be seen playing in the plant-filled foyer.

DEREK: (shaking his head side-to-side) **What a** day! Geoff was late this morning, so I had to do his first two runs-the school runs as well.

ANA: I feel for you, that's a tough start to the day. But it got better after 9.45 when the buses are used for hospital visitors to shuttle them backand-forth for free. I was on those buses last year when I needed some extra mental health support, it was such an empowering time for me and my family. Now I have a better sense of my identity as I hit my mid-50's and there are tough days but I'm definitely living well with recovery now.

JOHANN: Good for you Ana, I remember how vulnerable you felt and how soothing the sensory room was for you.

DEREK: It just makes so much sense that the

The Seaside Town of Felixstowe on the East-Coast, 2040

hospital transportation and the town's bus and taxi services are all working together as one system. But what about the school holidays, what happens then?

ANA: (wiping her face with a towel) Well, this year we're all doing update training with the bus-stop defibrillators and the communities living nearby. Phew... I'm going to go now, it's getting a bit too hot for me here, my Fitbit is giving me a reminder that I need some water and to put my feet up.

Ana leaves with a wave to Derek and Johann who nod and smile back.

DEREK: Fancy a walk around the hospital gardens after this? There's some live music playing on the

2

hospital common plus there will be the evening food market on there too, and the beer tent.

JOHANN: Great idea. I'll need to go and get my bike and pick up my prescription from the hospital too. It won't take long though.

DEREK: (wrapping his towel around him and standing up) Sounds ok to me, it's great to have the pharmacy prescription app to stop those waits at the hospital dispensary. The pharmacists have a much easier time now, it used to be chaos in there. But now there's a direct line from everyone qualified to write a prescription straight to the pharmaceutical stores that just release whatever is needed for the drone to pick-up and deliver.

DEREK: It's modelled on the French pharmacy system I think. I remember living there and the

The Seaside Town of Felixstowe on the East-Coast, 2040

pharmacists would use the computerised till to 'make the order' and that was mechanically connected to the medicine store and the packets and creams would come tumbling down a chute to me. So clever and efficient.

JOHANN: Yeah, there're a lot of clever and simple changes to all kinds of services with the intercountry knowledge exchange social media profile. Everyone just uploads the ingenious things we see on travels, then researchers and technicians can maybe develop them to implementation.

DEREK: Like for my sister Ruth, the teacher and the school thing. They've never been the same since the first Covid-19 pandemic hit and the old lines of services began to blur. We'll see her later on the common, she'll happily share her thoughts on how schools are now healthy family hubs.

2

Derek and Johann leave the spa and begin to walk along the pathways to the hospital a campus style hospital of the 2000's that was reimagined in phases by an interdisciplinary collective in partnership with the hospital, town transport services, the local education authority, community healthcare providers, and the food outlets throughout the town region. Beginning with a holistic audit, it resulted in a systems approach as the first infrastructure to change. Stimulated by the then-government's Tackling Obesity 2020 plan and the National Food Strategy of the same year, the town's figure for obesity has fallen from 61% to 5% of the local population. The focus for all is reaching zero obesity and zero malnutrition.

The Seaside Town of Felixstowe on the East-Coast, 2040



RUTH: (wearing a tracksuit and waving excitedly as she races up toward them in her wheelchair) Hey Johann, Derek! Great to see you, just going to finish my circuits then I'll join you by the wellbeing hub in 20-minutes.

2

Ruth speeds off leaving Derek and Johann waving and heading toward the pharmacy. It's located in the well-being night hub that also serves botanical drinks, has a masseuse and physiotherapist drop-in clinic, and a herbalist who can prescribe homeopathic and plantbased treatments, as well as other wellbeing professionals.

DEREK: It's so great to have this 24/7 wellbeing hub here – fits in whatever shift I'm on and I love that it has a rooftop kitchen herb garden. It smells so good, plus they use the herbs in the botanical drinks.

JOHANN: Yeah, it's IN reach instead of the old OUTREACH model and the hospital is the centre of wellbeing where we all come every day instead The Seaside Town of Felixstowe on the East-Coast, 2040

of just for work or if there's something wrong. I think I'll ask the nutritionist about what I should be eating when I go back to night shift. I'll probably be prescribed additional time outdoors in the daylight as well.

DEREK: Loving this week's school children botanical artwork, look at the way they've used old tins to make the feet of the dinosaur and planted herbs inside. They must have had a great time with the hospital green lives team.

RUTH: Hi again, I'll have a botanical water please Derek, it's your turn, I think. It's been a busy day at school – healthy families, but good busy. The old WHO work on life years gained is the bedrock of all I do every day for families. Today we had hospital nutritionists in co-working with the school kitchen team on menu planning and then

2

the parents' gardening group joined in after digging up the new potatoes for lunchtime. We made quite a noise, but loved it—so much energy and activity.

DEREK: (smiling and placing a drink in front of Ruth) So, Ruth, what would you say are the biggest changes for schools since 2020's pandemic stimulated systems integration?

RUTH: (looking thoughtful) Hmmm, that's a tricky one, but I'd say the penny dropped when the old teaching of the whole child initiatives clearly became about the child in the family and all of their total body and mind wellness and care. So, instead of silos of education, care and health, we put the family in the centre, they use diary apps so we can support them with healthier and more knowledge aspirational lives. The team gather

The Seaside Town of Felixstowe on the East-Coast, 2040

around them virtually and it costs so little, it's so flexible and efficient, as mounds of paperwork isn't the responsibility of the support team, but the family who keep it digitally stored on their app, backed up by a plug-in to the school's healthy families database.

JOHANN: It's a different mindset now isn't it. We always liked to have a hospital near-by because we were living in fear and used to the idea of someone fixing us if we got sick. Now we like a hospital nearby because it keeps us well and it's sociable here. Not a scary place at all. It's not the drama filled place of pandemics but an everyday place to walk the gardens, sit in the Forest Garden, to buy food, to keep well...

RUTH: (looking toward the stage)... and enjoy listening to music. Come on, let's go and join in!

2

Resolution

If Total Health³ is embedded in all our daily lives it will propel the redefinition of health to one of an eco-system that consists of the individual at home, community health, and the hospital all working explicitly together to bring about **'health as the nation's primary asset'** (Professor Dame Sally Davies 6/5/21). At the recent Salus TV conference Designing for Human and Planetary Health: The big ideas and practical solutions shaping a healthier world Marc Sansom said that **'health is made at home'** and as holistic built environment specialists we wholeheartedly support his comment with the caveat that the hospital is the pinnacle of good health and not of sickness. With many decades of experience in creating environments that support, promote, and create good health we are truly human and relationship centric and recognise the value and role of well-cared-for nature to our health and wellbeing.

As a multidisciplinary team, we comprehensively utilise the recent ONS Index Explorer (2021)⁴ as an impact tool to consider three key domains of our collective health: People, Places, and Lives.⁵ This enables us to recognise our holistic selves as mental, physical, and social beings. Because we strongly believe in feedback loops in all the work we do, this collaboration could provide valuable ONS-requested feedback to meet the call for data and innovation. Making sure that a vital piece of the transformation jigsaw, that of data driven design to guide implementation, management and use, is in place to ensure

that 'good health is an asset to our economy and an opportunity for prosperity and happiness for each of us'.6

People

We believe in Total Health and our submission is abundant in its mosaic of experts in this area. The work of our submission included thought leadership discussions and knowledge-sharing with established companies with international reputations of empowering people through design. This fortified our collective thinking on how to navigate the steps of transformation and improve people's lives and health by harnessing the teachings of nature and implementing them with innovative technology. These values are evident in the Caring Collective members' work which demonstrates knowledge and innovative thinking about social, biological, cultural, and community needs, becoming navigational markers in the path to human-centric change.

Lives

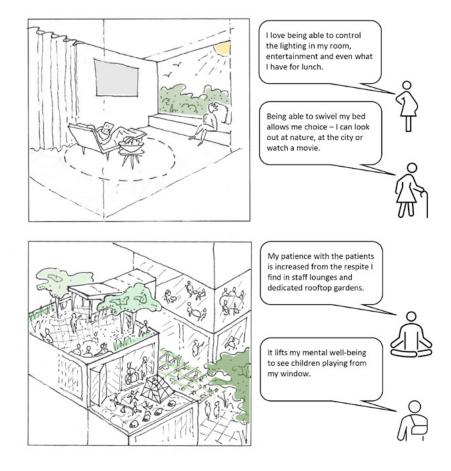
We believe that data is the first infrastructure, enabling us to direct time, money, and resources that implement and provide appropriate and successful services. This collaboration confirmed our commitment to technological liberation from expensive and soul-destroying inefficiency to form design ideas based on a deep knowledge and understanding of what works in day-to-day scenarios. The Caring Collective's experience and expertise working on hospital projects has holistically challenged and harnessed the realities of embracing technology. Invaluable expertise about health and economics was

3 Marc Sansom, 'Designing for human and planetary health: The big ideas and practical solutions shaping a healthier world': Salus TV launch webinar, 6/05/21. **4** https://healthindex.lcp.uk.com **5** Health 2040-Better Health in Reach. **6** Professor Dame Sally Davies, 'Designing for human and planetary health: The big ideas and practical solutions shaping a healthier world': Salus TV launch webinar, 6/05/21.

shared and led to inspiring conversations about systems thinking. This expertise marries well with innovative work on tackling climate change, holistic wellbeing solutions, and logistical rationale.⁷

Places

We believe it is impossible to compartmentalise the hospital of the future into three neat packages of people, lives, and places. Yet it's a point from which to deviate and recognise the blurredness of people's lives in places. This is both a challenge and an inspiration that collective thinking, designing, actualising, and managing excel at. We love to find cross-overs, gaps, and things that are hidden. The Caring Collective is extraordinarily well represented by specialists who bring visionary creativity, shaped by macro understanding of how places work best.



⁷ Cost of excess bed stays: https://questions-statements.parliament.uk/written-questions/detail/2014-07-15/205785. WHO HEAT approach (for physical activity benefits): https://www.euro.who.int/__data/assets/pdf_file/0010/352963/Heat.pdf and UK Govt: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/940848/tag-a5-1-active-mode-appraisal.pdf Valuation of Journey Quality as guide for Patient Experience (from page 26): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/940958/tag-a4-1-social-impact-appraisal.pdf Research into Willingness to Pay for Improved Patient Experience: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3988932/ Local Economy Benefits of more integrated/walkable Urban Design https://content.tfl.gov.uk/walking-cycling-economic-benefits-summary-pack.pdf NEF Local Multiplier tool https://www.nefconsulting.com/what-we-do/evaluation-impact-assessment/local-multiplier-3/

We see the hospital of the future as a micro and macro place, with a myriad of complexities of site-specific nature all working within a framework of homogeneity and generalisation. The horizontal way in which we operate, being a virtual-physical hybrid, and the liberated economics of a bottom-up collective is a transferable model. We formed six guiding principles to underpin the planning and designing of the hospital of the future:

1. A Civic and Community Beacon

A cultural interface with tentacles out into the community that anchor and support healthy living. A place that champions accessible wellbeing and preventative health through gyms, public art, green and growing spaces, cultural activities, swimming pools, spas, libraries, and research and lifestyle hubs.

2. People-Centric

From the outside in and inside out, patient autonomy and confidence in lifestyle choices is reinforced in a soothing and healing environment that does not compartmentalise mental health from physical health. A place where eating is a nurturing experience and allows cultural diversity and individual profiles of nutrition.

3. Adaptable

Employ design that can be 'light on its feet', leans on a modular repeatable approach, adaptive floor plates, and inside-outside ingenuity that can adapt cheaply, quickly, and beautifully. The ebb and flow of ever-changing external influences is constant but the care workforce, patients, and their visitors will always have a soothing and healing space.

4. Sustainable and Resilient

From the site(s) to the doorknob, achieve net zero in open space construction and use by capitalising on natural resources, imaginatively used and repurposed, and employing building materials that 'people like to be near'. A beautiful hospital that connects people with the environment and nature and enhances empathy and ecological connectivity.

5. Technologically Smart

A place of technological excellence that creatively utilises smart systems at different scales – from individually-worn devices to robotic operating rooms to tele-medicine – facilitating flexibility in physical space.

6. Value for Money

Identify which aspects require long-term investment and future-proofing, and which aspects need not require deep pockets in the short-term. Use technology to positively impact how and where money is spent. Embed data feedback loops to do things more affordably and undertake the Trinity Challenge.

Collective Crew

Max (LC) Project Director

Health and wellbeing are fundamental for people and the planet. We need to embrace the complexity of city making in order to drive systems to change physically and virtually. This is a wonderful opportunity to design care into the urban fabric.

Bee (FD) Project Manager, Interviewer & Author

Food is fundamental to health as it is both preventative and restorative. Hospitals could be the community beacon of healthful food where food is so good, seasonal, and interesting that people come to eat at the hospital food places on a day-to-day basis.

Kathryn (FPD) Researcher & Illustrator

By being technologically smart and sustainably resilient, health care, research, and community could be more integrated. Actions such as telemedicine, getting people active in their immediate environment, and using co-located spaces for cultural and age diversity could turn hospitals outside in and the inside out.

Shira (FG) Interviewer

There needs to be a social understanding audit. As a patient we come out of a hospital transformed in some way and because of our knowledge that this will happen we put a lot of trust in the place and entrust the staff.

Collective Partners

Ryan (DG)

If there were walking layouts that led from the hospital to the local streets of shops and cafes it would create an ambience and promote walking for health. How can we make the corridor somewhere enjoyable to be, with rooms that can flex to change size?

Simon (JLL)

Health on the High Street, defined by Environmental, Social and Governance criteria, is key for investors and corporations, and so is also part of large-scale regenerative drivers. Health on the High Street will be accessible places relevant to the growing demographic of tech savvy 65 pluses, who will number one in five by 2038.

Mark (PW)

There are multiple activities in a single space in a hospital yet technology pushes care outside of hospitals, thus do hospitals become places of acuity of sickness only dealing with the most chronic cases. The challenge is about bringing out design sensibilities that work well in other sectors and transferring them to the hospital.

Stephen & Paul (S)

Technology can stop cycles of inefficiency allowing the patient' needs to be at the front and centre of everything. If feedback loops of data and research are embedded in implementation we can learn and adapt on the go.

James (TG)

We could harness the power of plants to not only aid patient recovery but also to purify the air using a botanical filtration system. Nature as a teacher providing a more efficient and economical solution to mechanical filtration. And we'd make use of natural sound, light and scent to create a more welcoming arrival experience – an environment that allows people to transition to feel calm and at ease.

Collective Contributors

Phillipa, Sam, Luke, Tom (AESG)

Smart thinking buildings actualise the NHS zero carbon strategy by monitoring water usage, using sensors for energy saving, incorporating remote treatment, having a food growing landscape, zoned areas, and embedding the preventative power of plants.

Neil (AmBX)

By managing colour spectrum lighting we can embrace the capabilities of lighting to optimise wellbeing, comfort, and recovery as part of holistic design. Our commissioned circadian lighting research by Newcastle University found positive results in challenging sleep deprivation for patients and staff.

Paul (BD)

If we want to look at the future for hospitals, it's going to be modular. Maybe not the modular we know now, but still it's a no-brainer that as technology develops, rooms can be removed, refurbished, and then replaced.

Glenn (CP)

Being sympathetic and empathetic is possible by making voices heard and discussions transparent, open, and accessible. Through individual and group mobile responses we collect illuminating data, analyse it for issues that clients can act upon, and embed a 360° communication loop.

Chris (CS)

How do people move through spaces - are they 'strollers', 'daydreamers', or 'pros'? Can a hospital, through its design and branding, alleviate anxiety and be able to surprise in playful unexpected ways?

Martin, Patricia (DK)

There have been grand gestures of change that are moments of narrative in the hospital's evolution. We need to look at the interventions and the layering as well as what could be done in the gaps between buildings.

Hannah, Charlie (E_UD)

Levity and play are intrinsic things that make us feel safe and have so much to do with scale. For children, the scale and height that is appropriate to them, like play areas or the height of windows and ledges, is important. Open spaces – even for someone ill in bed – to see others walking outside or going to the hospital cinema...just seeing normal life going on can be very reassuring.

Nathan, Carl (EC)

Patients and visitors need spaces to be alone as well as spaces to have chance encounters with other people who may be going through something similar. These connections can have positive impacts, particularly for patients who are in hospital long-term.

Sherry, Mark (FC)

Moving from the dramatic hospital to the everyday hospital could be a big part of total body and mind wellness and care. If there are moments of beauty, awe, sensory pleasure, and serendipity the hospital could feel more individualised.

Gary, Nisha (P54A)

Almost creating a high street experience, so rather than removing the hospital from the community, make it part of the benefit for the community. The hospital of the future is a project of thresholds, public, semi-public, semi-private, and areas that include arrivals and departures or critical care. We need a cognitive code to entrust ourselves as we move from space to space.

Phil, Jerry (PJA)

At the centre of most hospitals is a very cramped large area of car parking – there is never enough to supply the need. First thing is to address that, to pair with a local bus company, work with local authority, dedicated bus service, electric vehicles/shuttles, buses that go directly to the hospital or that connect journeys at a park and ride.

Samantha, Tom, Giles (SH)

We use Urban Greening Factor recommendations to work with all kinds of people like engineers and supermarkets to make density of landscape instead of density of buildings. It's the ecosystem services that we tap into to give aesthetic and sensory pleasing places where people and plants can thrive.

Simon (TZ)

The overarching philosophy of zero carbon thinking is resourcefulness and efficiency. We have to look at what a building has to offer on a site-by-site basis, do carbon audits and repurpose, recycle, and reuse buildings.



Thank You