–Designing the future:
How can building design change the way patients experience primary care?

Assura

Bringing care closer to home by creating modern, fit-for-purpose buildings.

Introductory Comments from Jonathan West, Research Fellow and Leader, Healthcare Research Space at the Helen Hamlyn Centre for Design, Royal College of Art

In 2015, my colleague Jeremy Myerson and I asked this question about healthcare: "What if the patient experience was placed at the centre of the process and services were framed by design thinking as well as clinical considerations?"

Our paper[1], which looked at how universal design principles could improve the patient experience, is one part of a body of innovative work in this country focused on making healthcare experiences and outcomes better by starting with the person. We have also worked on design principles that help to design out medical error, in association with Imperial College. As more services move from a hospital setting to primary care, these design principles will become even more important. I am delighted that this project already embraces the assessment and inclusion of these nascent technologies.

It's a question nowhere more applicable than in primary care buildings. These are the places where most NHS contact with patients takes place, and the variation in their size, shape and design is as extensive as the communities they serve, and reflects the history of each individual practice. Throughout the National Health Service's seven decades, primary care has been in a constant state of evolution; as the demands on general practice have increased, so has pressure on the physical infrastructure which accommodates it.

The drivers of clinical change and innovation in primary care are also driving the design of its buildings: the colocation of services, and the need to enhance good health rather than simply tackle illness; the integration of social care and primary care services in the community, and a range of specialist services increasingly delivered at general practice level. Digital and virtual space will play an increasing role in healthcare in the coming years.

The ideas which follow range from the simplest, to some of the most aspirational. By looking to the way patients experience healthcare buildings in this country and internationally, these ideas offer a sense of the potential for primary care building design to play its full part in the transformation of care close to home.

This work is fascinating, timely and a very worthwhile undertaking.

> "We shape our buildings;
> thereafter they shape us."
>
> **Sir Winston Churchill**

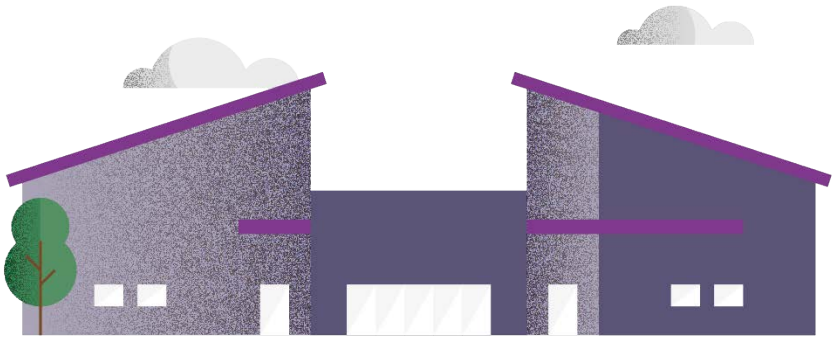
Terraced houses with little space for privacy at the reception desk, or for patients to wait in comfort. Cramped consulting rooms which can't fit in an examination couch, or which force doctors themselves to work at a difficult angle. GPs based upstairs in buildings with no lift facility, meaning that patients with prams or who rely on wheelchairs have to be seen by others[3]. Practice teams with fast-growing lists in buildings which can't keep up with demand[4].

This is the well-documented reality of some primary care buildings in theUK[5]. Out of more than 7,500 practices in England alone[6], it's estimated that more than one-third are working from former residential buildings converted to accommodate general practice. Doctors, nurses, practice managers, care navigators and their wider teams struggle on to deliver care in buildings which simply aren't fit for the job of 21st century healthcare[7] – either as workplaces of NHS staff, or as places where patients receive their care.

At the other end of the scale, primary care buildings in this country have been forging new paths with healthcare design for some time. Sites like Sudbury Community Health Centre, Frome Medical Centre and the award-winning Moor Park Health and Leisure Centre in Blackpool have been innovators in using their bricks and mortar to change the way in which the practices inside work with other local services to support their patients[8].

But in the NHS' 70th year, with significant professional[9] and political focus[10] on the infrastructure challenges it faces, Sir Winston's question is worth returning to in a very different context. Just how severely are the limitations of many primary care buildings constraining GPs - in their efforts to provide more services closer to home, to deliver the vision of the GP Forward View[11] and to support the local vision of each sustainability and transformation partnership (STP)[12]? Put another way: is the existing infrastructure of primary care dictating the way we think about and design the healthcare spaces we will need for the future?

In this milestone year for the NHS, we wanted to put aside those constraints. We've explored international inspiration for the primary care environments we'll need not just in the next five or ten years, but for the spaces and places it will need in future decades - which fully embrace digital technology for personalised healthcare, the delivery of specialist health and care services close to home, and the aspiration to foster wellness rather than simply treat illness.



"We do ourselves a disservice if we plan the buildings for the future based on how we deliver care today…What will a GP surgery building of the future look like? It won't be a surgery. It'll be a place where you access the things you need to keep you well."

Dr George Ogden, chair of Bolton GP Federation and primary care advisor to Greater Manchester Health and Social Care Partnership, Conservative party conference fringe 2017 (The Estate We're In: Designing the Primary Care Buildings of the Future)

We've looked to countries across the world to identify some of the most innovative healthcare building design features, and to consider how they might have impact in the design of primary care premises of the future. Crucially, we've explored how each building or feature is enabling the care provided within to evolve and meet the needs of the patients it supports.

Some will ask why this matters. If GP premises are hygienic, warm and dry, with privacy for consultations, what more do we need? With the NHS' financial challenges, can we really justify improving the buildings it uses above and beyond the functional and safe?

The answer to that question is, surely, all about the outcomes for and experiences of the people using them. As patients, more pleasant healthcare environments help us to feel better[13], not just reducing anxiety and encouraging rest, but actually helping us heal. In these times of such intense pressures on primary care services because of our growing, ageing population, all interventions which can improve and sustain clinical impact must be considered.

And for NHS staff dealing with demand for health services and the subsequent pressures for funding, the outcomes are equally compelling. Research by the Picker Institute[14] highlights NHS staff views that efficiency, recruitment, communication and job satisfaction – all fundamental issues for this country's most highly valued workforce - are all importantly affected by the design of their workplaces.

As specialist healthcare architects Steve West and Jim Hart describe it: "A better building, a better environment can make you feel better before you've even seen a doctor. It's more than bricks and mortar and steel; it's creating internal spaces which impart a sense of wellbeing…Thoughtfully-created waiting spaces and seats, colours, natural light, ventilation, nature – all of those things make a patient feel far, far better."

Wide open spaces

- Frome Medical Centre, Somerset, UK
- Clermont-Ferrand University Hospital, France

The days of a primary care centre design providing little more than a children's area in the waiting room, and rows of seats for people to sit and scroll on a smart phone, should be long gone.

Creating healthcare spaces where visitors can use their time productively – before and after their allotted appointment – makes both clinical and economic sense. Designing waiting areas to meet the needs of different patients will, over time, change the way they look.

For example, furniture and wifi could allow patients who have taken time off work to attend appointments the ability to continue working while they wait, or to decompress by browsing, gaming or shopping online.

Quieter zones can give other patients a comfortable space to read and relax away from visual messaging, children's play areas and information.

Retailers offering healthy food and drink can introduce a more social, community feel and offer a base for shared health interest groups to meet. They also echo common use of spaces we visit in our leisure time, encouraging us to be around healthcare spaces proactively, rather than only attending when we are ill. This is seen particularly effectively at Frome Medical Centre in Somerset, where the community café is used by a group every week as the base to decompress together after an organised walk. In France, we found examples of buildings co-locating medical care with office bases for law and accounting.

"Architecture is the thoughtful making of space."

Louis Khan, architect

Wide open spaces

What can primary care buildings learn?

The way we use physical space in other sectors where we are 'waiting' – such as leisure venues - offers food for thought for the use and design of space in primary care buildings.

Pairing facilities for physical activity with primary care space has particularly obvious benefits: housing activities by which we can help prevent poor health under the same roof as services to treat poor health supports the long-term direction of primary care to even the balance between fostering wellness rather than just tackling illness.

And the potential for other public services to share the same buildings as primary care is endless. Here in the UK, it is already a successful tactic in some areas, but could be employed to a far greater extent. We are already used to council offices, libraries and advisory 'one-stop-shops' operating under the same roof as GP services in larger buildings, and it is a principle actively encouraged in programmes such as One Public Estate.

How can wide open spaces help patients and staff?

- Waiting time is used, not perceived as 'lost'
- Communities visit health spaces for a wider range of reasons
- Services which contribute to broader health – such as charities supporting families on budget planning or childcare – are easier to access.

Digital direction

- Health On Broadway, Tucson, Arizona, USA
- The University of Minnesota Clinics and Surgery Center Building, USA
- Bon Secours St. Francis Health Center, Greenville, South Carolina, USA
- Josie Robertson Surgery Center, New York, USA

Whether it's helping patients find their way around the building, checking in for their appointments or getting information more traditionally passed on via leaflets or on posters and ageing TV screens in the waiting room, these buildings incorporate digital technology into their interior design and, often, into the walls themselves to carry patients through their visit.

Digital instruction gives patients step-by-step directions to the part of the building they need to visit. This can be interactive, using touch-screens, or can offer step-by-step directions via Bluetooth to the patient's smartphone. It also allows staff to use the building to communicate health messages directly to waiting patients: the importance of having a flu jab, the process for collecting prescriptions or changes to staffing on that particular day.

Digital check-in, just like the systems used by airlines and in retail, allows patients to let the practice know they have arrived. It can also be used to get questionnaire information needed by the doctor, or to pass on information on systems like parking or waiting times.

Real-time location allows patients and staff to be able to find each other while they are in the building – for example, patients can check in then be free to use other services in the building, or to grab a drink in a refreshment area where staff can come and greet them personally, rather than having to stay in a designated waiting room. Everyone in the building wears a badge which transmits a unique ID number through infrared and radio signals.

Digital technology is an obvious tool[15] to help patients navigate their way around and use large healthcare spaces, and there is real potential to deploy this more effectively in primary care spaces offering services at scale.

How does digital direction help patients and staff?

Added support to check into and navigate an unfamiliar building – helping practices improve their reception and welcome processes.

- Patients more likely to arrive at the doctor's office on time
- Less support staff time used to provide directions
- Information can be updated instantly, to reflect the time of year or service changes
- 'Clutter' in waiting areas disappears – along with related infection control implications
- Human error inputting data is avoided
- Distraction from pain/anxiety; waiting times may feel shorter
- Creates a more relaxed environment
- Can track patient activity levels – for example, to see if a patient has been stationary for too long and might need help.

Outside inside

- CHA Women and Children's Hospital, Seongham, South Korea
- Henry Ford West Bloomfield Hospital, Michigan, US
- Community Hospital of the Monterey Peninsula in California
- Ballarat, Coolture, Australia

Vegetation and water features have long been incorporated into hospital building design to help create calming environments. With more than three decades of research into the impact of gardens, plants and vegetation on healing, it's widely accepted that greenery and access to gardens in hospital design – both physically and by being able to see beautiful external spaces from inside the building - can help diminish the effects of an otherwise stressful environment for patients, as well as meeting infection control standards[16].

This use of 'the outside inside' to help reduce patient anxiety and speed recovery in hospital buildings around the world is real food for thought for primary care building design – particularly given the NHS' ambition to deliver an increasing number of specialist services away from hospital in the community, meaning that future decades will see more patients accessing services traditionally provided at acute sites in the same space as they visit their GP. This will mean greater levels of anxiety for some patients – so if the building can help to ease that worry, it should.

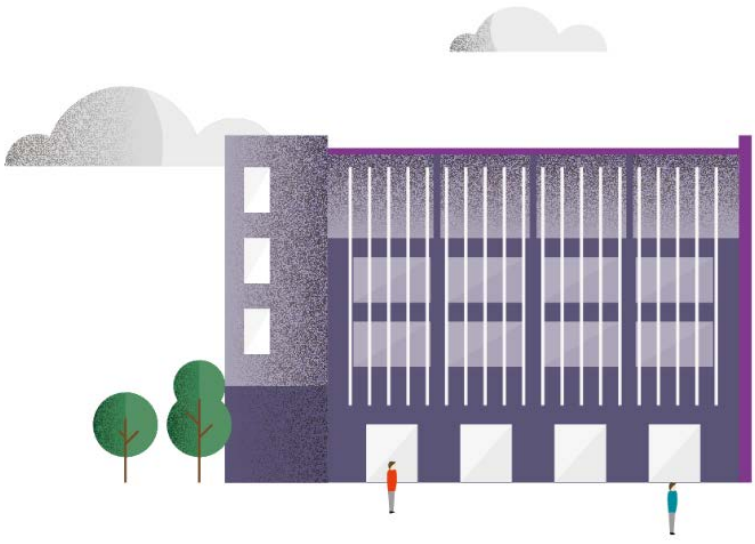
Internal planting is used to soften the lines of buildings – with some examples boasting many thousands of plants throughout their interior

Internal water features are some of the most appealing for "easing mental and emotional fatigue"[17] – with the right design, installation and maintenance

Internal access to / views of external gardens are believed to offer restorative effects for patients in as little as five minutes[18].

How does bringing the outside inside help patients and staff?

- Improves recovery
- Less stressful when visiting, staying at or working in the building
- Makes the building more interesting to look at and listen to
- Relatively inexpensive to supply and maintain
- Can help to humidify the atmosphere.



Vital statistics

- St Triduana's Medical Centre, Edinburgh
- County Oak Medical Centre, Brighton

Some primary care centres in the UK already offer equipment allowing patients to check their own weight, blood pressure and to answer other basic clinical questions before they see the doctor or nurse. Evidence to date[19] suggests self-screening in GP waiting rooms is popular with patients and with GPs[20], but under-used because many simply do not know of its existence.

As the evolution of self-monitoring for health through digital technology continues, there is potential for patients to supply data from both devices and by self-testing on the day using surgery equipment ahead of appointments, to help focus appointment time on discussion, treatment or further investigation with the GP or nurse. Of course, this relies on effective guidance from healthcare professionals to ensure that the data gathered is useful and accurate but for those measurements taken within the primary care space, there is considerable scope to make this equipment an attractive and innovative part of the fabric of building design.

How does bringing the outside inside help patients and staff?

- Makes use of 'waiting time'
- Helps to keep appointments to time
- Involves and engages the patient with their own care
- Keeps appointment time focused on discussion and next steps
- Automates the recording of test data – easing pressure on staff.

Light and space

- Strålbehandlingsklinik, Lund in Sweden
- Ronald McDonald House in Tubingen
- Montefiore Medical Center, New York

Let there be light

The designer Maggie Keswick Jencks, who before her death from cancer had set in motion plans for the ground-breaking network of cancer care centres named in her honour, once said: "At the moment, most hospital environments say to the patients, in effect: 'How you feel is unimportant. You are not of value. Fit in with us, not us with you.' With very little effort and money this could be changed to something like: 'Welcome! And don't worry. We are here to reassure you and your treatment will be good and helpful to you.'"[21]

The approach to design born out of Maggie's legacy is in direct contradiction to the healthcare spaces she observed. "Overhead (sometimes even neon) lighting, interior spaces with no views out and miserable seating against the walls all contribute to extreme mental and physical enervation," she wrote. "Sitting in a pleasant, but by no means expensive room, with thoughtful lighting, a view out to trees, birds and sky, and chairs and sofas arranged in various groupings could be an opportunity for patients to relax and talk, away from home cares."

These ideas aren't just embodied by the Maggie's network, but have been adopted in various forms by many other treatment and diagnostic centres around the world. They also provide inspiration for primary care building design – particularly in the drive to 'bring the outside in', but also in the incorporation of natural light.

The importance of the latter in healthcare buildings cannot be understated[22]. As the Center for Health Design in California put it in 2006: "Adequate and appropriate exposure to light is critical for health and well-being of patients as well as staff in healthcare settings. A combination of daylight and electric light can meet these needs. Natural light should be incorporated into lighting design in healthcare settings, not only because it is beneficial to patients and staff, but also because it is light delivered at no cost and in a form that most people prefer."[23]

Locations such as Strålbehandlingsklinik, Lund in Sweden offer an example in practice. Together with the Karolinska Hospital in Stockholm, the Strålbehandlingsklinik is a Swedish leader in cancer care and treatment – but also for its design. Whilst the building must provide strong protection from radiation due to the treatments it delivers, the vast quantities of concrete this entails can have a detrimental effect on the environment for patients and staff in a place where creating a calm and pleasant setting is important for patient experience and recovery.

By using a labyrinth-like layout with radiation guards situated along corridors, the architects have managed to combine the same level of radiation protection, but with matte glass internal walls for a light and airy environment. Waiting rooms and offices are located around the perimeter of the building to capitalise on the natural light available with large windows and highly reflective ceiling tiles.

Light and space

What can primary care centre design learn?

As functional buildings, innovative methods to create and maximise light are essential to improve the patient experience.

Space to heal

When it comes to the flexibility of space, we found many international examples of the use of moving parts to adapt different areas of a medical centre for alternative uses quickly and efficiently.

Ronald McDonald House in Tubingen, Germany uses manual sliding wall systems made out of glass rather than solid panels so that large rooms and spaces can be divided up for flexible use - without losing the bright and airy environment. The system – which can be pushed easily - allows the ground floor to be divided into various spaces, or when not required, rests against the wall.

In primary care buildings, whilst moveable glass partitions would not offer the privacy needed in consultation areas, it could be very useful in back office or waiting spaces – which need to be adaptable and highly functional without compromising the look and feel of the environment. The flexibility of new primary care buildings is a particularly high priority for the NHS in the context of service transformation and digital disruption, and this is one simple example of this in action.

How can light and space help patients and staff?

- Calming effect
- Sense of being in an open space, and connected to the outside world
- Faster healing, better mood
- Contributing to energy efficiency
- Happier staff / pride in working environment

Designing for dementia

- Mowbray and Roker Dementia Care Unit, Monkwearmouth Hospital[24]
- Hogeweyk, Holland[25]

Between 2005/06 and 2015/16, the total number of people aged 65 or over in England increased by just over one-fifth; nearly 1.7 million extra people. Among that group, it's estimated that more than 600,000 people have dementia[26]. Management of dementia costs the UK more than the combined cost of heart disease, cancer and stroke[27] and forms an increasing part of GPs' workload: at the end of 2017, the equivalent of one in every 129 people registered with a doctor had a dementia diagnosis recorded[28].

It's an indication of how our built environment – particularly that of the NHS – will need to change to better meet the needs of this fast-growing patient group. One of the fundamental challenges of dementia is its impact on our ability to navigate and make sense of our surroundings, but buildings which have been thoughtfully designed can help dementia patients feel safe, secure and more independent, ultimately improving their experience of healthcare and their care outcomes[29].

What can primary care buildings learn?

Many GP surgeries are already making excellent efforts to serve their dementia patient community well, and to make their practices friendly places to be for those with the condition. However, the way primary care buildings use signs, lighting, art, texture, digital technology and colour in their construction or improvement will be increasingly important in creating dementia-friendly environments for patients.

How can designing for dementia help patients and staff?

- Meeting the needs of its quickest-growing patient group
- Reducing stress and anxiety
- Helping patients focus on their discussion with the GP, nurse or pharmacist
- Helping appointments to run on time
- Encouraging independence
- Supporting carers

> "People with dementia are more likely to be at a heightened sense of stress and anxiety than other building users, so the building itself is key in helping them to navigate and orientate to reduce that."
>
> Lesley Palmer, Chief Architect, The Dementia Centre, Stirling University

Safe haven

Rambam Medical Centre, Haifa, Israel

In guidance issued in 2017[30], GP surgeries and hospitals were warned, along with a range of other 'crowded places', of their potential vulnerability to terrorist incidents. The guidance underlines the importance of a welcoming and friendly environment for patients in healthcare spaces, but it also offers suggestions on how the use of space, layout and design can help to protect staff and patients.

Rambam Medical Centre in Haifa, Israel is an interesting case study on the use of design to prepare for major incidents. Its carpark is designed to convert into a 2,000 bed underground medical centre if missiles and rockets are falling above, or in the event of an attack with chemical or biological weapons. With power outlets, connections, air conditioners and heaters, water and filtration systems built into the walls and floors, it stands ready to move hospital operations for 2,000 patients underground if the need should ever arise.

What can primary care buildings learn?

Whilst a full underground facility is unlikely to be needed for GP surgeries, the concept of a 'safe room' or area designed into primary care buildings for protecting patients and staff in the event of an attack may be a consideration in particularly big and busy sites. Perhaps even more importantly, the concept of flexible space is fundamental to the design of effective primary care buildings. Having the ability to change the way a building functions; to move walls, refit and reconfigure rooms is essential to keep up with the pace of change in care, staffing and, crucially, with the impact of new technology.

How can flexible buildings help patients and staff?

- Continuity of care in a crisis
- Reassurance that communities are prepared
- Space to accommodate more NHS services closer to home
- Future-proofing building design

Fit for the future

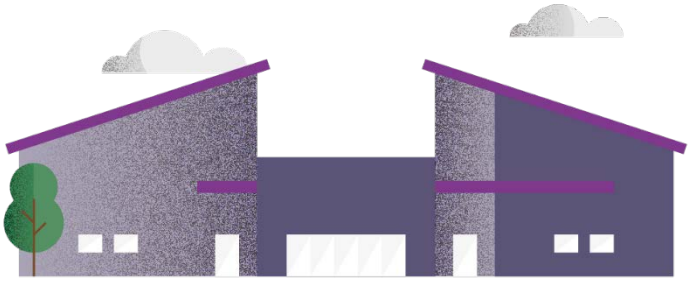
"All problems are solved by good design."

Stephen Gardiner, architect

Fit for the future:
If our trawl of international healthcare building design to inspire GP buildings tells us anything, it's that one size definitely doesn't fit all. Even as new models of care evolve, buildings for primary care will need to be as unique as the communities they serve. Whilst many of the fundamental principles behind these design ideas hold true for any attractive, effective public space, they are not well-represented across all primary care buildings today. But they can act as prompts to ensure that in designing new primary care spaces, we scrutinise ever more deeply how patients and staff experience them and how these buildings can interlink with other parts of our lives – now and in the future.

Any area embarking on the process of improving or designing a new primary care building – particularly one which will house a number of GP surgeries and other services – will work with architects to explore these sorts of principles. Yet too often, the UK's primary care spaces are still constrained by a pattern which looks more to the traditional layout of general practice space than to preparing for the care of the future. The ideas above can help GPs embrace the potential for their buildings to support changing care models.

Above all, the contrast between these ideas and the reality of many of the buildings in which primary care is delivered today is stark. Too many of the NHS' buildings pre-date its existence. If patients are to have the experience they deserve, the task of making its estate fit for modern healthcare; fit to serve more patients; and fit to support the staff within its walls to do their work, cannot be allowed to take another 70 years.



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[1] https://arrow.dit.ie/cgi/viewcontent.cgi?article=1005&context=exdesthe1
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