

# Designing the future hospital: an architect's perspective

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## ABSTRACT

Drawing on the experience of Circle Hospital in Bath and Maggie's Centre in Manchester, as well as projects for the University of Iowa and Cleveland Clinic in the USA, we explain a design process rooted in research, which seeks to bring the natural world into the healthcare environment to maximise its therapeutic benefits, is explored. We discuss how a well-designed hospital can aid patient recovery, while creating buildings that are operationally efficient, environmentally sustainable and flexible to respond to evolving technologies, priorities and treatments.

**KEYWORDS:** Foster + Partners, CircleBath Hospital, Maggie's Centre, Cleveland Clinic

## Introduction

There is often reluctance on the part of architects to be involved with hospital design, perhaps because they are wary of the complexity of the task, the pitfalls and a lack of specialist knowledge. Certainly, there is great reliance on specialist designers in the field, but this in turn can lead to a dependence on established ways of doing things. Medical professionals can also be guilty of this, both in practice and in their approach to teaching new generations of practitioners. Overall, there is a tendency to model the future around proven but conventional paradigms. To balance this, designers and clients should seek out visionaries, within and beyond their organisations, to help support the development process. They should not rely entirely on their views, but introduce designs that can adapt to and promote positive change.

## Thinking differently: the CircleBath Hospital

One of the greatest advantages Foster + Partners had in designing a new hospital in Bath for the Circle Partnership was having never designed a hospital before. We were therefore able to start from first principles, with no preconceptions, and interrogate the wealth of existing design advice to completely rethink the way that hospitals were planned. Simultaneously, we drew on our experience in a range of related fields, from the design of places to live and work, to large-scale infrastructure, to small-scale product design. This allowed us to investigate

the challenges of a hospital afresh and design a building using first principles. This included looking back at historic models, studying hospitals from the time when the priority was to provide a well-ventilated bedroom with a view and a garden filled with medicinal herbs. In addition, the practice was in a position to interrogate the wealth of existing design 'advice', much of which in reality is simply guidance.

The starting point for a new hospital is often a brief written by a specialist on behalf of a client. To move away from traditional approaches, designers need freedom to interpret the brief creatively and engage directly with the client. All projects therefore begin with extensive research, site visits and close dialogue with the client and users. Where users have no previous experience of being involved in the design process, it can be helpful to visit recently completed projects to investigate and discuss the possibilities available. Some qualities, like light, flexibility and transparency, even in other building types, are best experienced first-hand.

As a result of working collaboratively with surgeons in Bath, the design of Circle Hospital's clinical spaces is technologically sophisticated – for example, digital operating suites allow surgeons to be trained on site or remotely. Insertion of windows in the operating theatres was another request (Fig 1a). In response to suggestions from staff, the public waiting spaces and bedrooms contain as many humanising touches as possible, such as a welcoming entrance (Fig 1b) and pull-out beds for family members who wish to stay overnight.

As patient care is certain to change and evolve in the future, flexibility is vital. For example, there is currently greater emphasis on minimising the length of hospital stays, with only critical care patients likely to be kept in hospital for any length of time. With this in mind, some major healthcare providers are focusing increasingly on specialist centres, largely composed of intensive or critical care facilities, supplemented by a greater number of small, decentralised hospital units. It is likely that these specialist centres will remain in cities, but property values mean that they need to be efficient and compact. The decentralised clinics may then be located to serve better smaller, local communities, with modest A&E departments. There can then be an emphasis on stabilising patients locally before treating their condition at a specialist centre once they are in a stronger position to recover from more invasive treatment. Such strategies are encouraged by the Future Hospital Commission.<sup>1</sup>

Technology is likely to change further the nature of healthcare accommodation. New options include remote diagnosis, where advanced imaging, communications and monitoring allow patients to see specialists remotely, avoiding lengthy travel. The

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**Fig 1. The CircleBath Hospital.** (a) An operating theatre ready to administer care to a stretcher bed. The floor space is kept free for efficient movement as all facilities are provided via the ceiling. The space is well lit both naturally and artificially. (b) The main foyer of the building with comfortable leather seating providing a resting opportunity for visitors and inhabitants alike. The space is flooded with natural light from circular skylights in the ceiling, which are decorated with a light feature to draw the light into the lower levels. Copyright Neil Young/Foster + Partners.

ease of going to a local centre to consult the best specialists in this way could take the pressure off dealing with large numbers of outpatients at specialist facilities. This will promote early diagnosis and the treatment of emerging conditions. In parallel, there is likely to be greater emphasis on community care and monitoring patients at home, or at least in a more familiar environment. That puts renewed emphasis on communication, and on developing and integrating technology that neither dominates the hospital room, nor is out of place in the home. Many large hospitals still use the terminology ‘bed-towers’, but in future it would be better to think of the patient’s room as living accommodation, more akin to a hotel than a hospital bedroom.

CircleBath Hospital exemplifies the move away from the ‘machine for treatment’, towards a more humane and civilised experience. Its corridor-less plan helps to eliminate the typical institutional references and encourages a sense of community. A double-height atrium containing a café, lounge, nurses’ station and reception point provides a social focus for patients and staff alike. The central space is a courtyard by another name – it is a place to congregate. It is the hub around which the life of the building revolves, feeling more like a hotel lobby than the entrance to a hospital. Throughout there is an emphasis on natural light and views: recovery spaces on the lower level are glazed, as are the operating theatres, and all look out across a quiet private garden. All the bedrooms have windows looking onto landscaped planters, which line the building’s northern and southern facades and are oriented to maximise views across the surrounding countryside. They also provide controlled natural ventilation when appropriate. This sympathetic landscaping further emphasises the therapeutic benefit of the natural environment – an overall approach which is very different from more familiar, institutional hospital surroundings. It is likened by patients to a five-star hotel.

As well as maximising the benefits of a natural setting for patients, it is important to remember the experience of family and friends. Spaces need to be welcoming and comforting, perhaps for long periods of time. Certainly there are occasions when some distractions from the core business of the hospital may be welcome. Following a collaboration with the Contemporary Art Society, the public spaces of the Bath hospital are filled with a loan collection of significant original works of art by international artists. Interestingly, the approach has had the effect of attracting the local community to use the facilities – the hospital’s café is now regularly used by local businesses as a place to meet.

### Other projects: University of Iowa Hospital, Maggie’s Centres and the Cleveland Clinic

Our experience at Bath has informed the practice’s subsequent healthcare projects, such as the extension of the University of Iowa’s Hospital, which is currently under construction. The masterplan is phased – the first part is a new building for the children’s hospital, followed by the construction of three new patient towers. The new facilities are fully integrated with the rest of the University healthcare campus, but with the full diagnostic facilities and operating theatres of a paediatric hospital. Learning from Bath, yet uniquely of its place, the children’s hospital is conceived as a bright, uplifting environment for patients and their families and staff. Naturally lit, double-height family spaces allow daylight to filter deep into the floor plate, opening up views of the trees and landscape beyond. The bedrooms are designed around the patient, with each incorporating a large picture window to create a visual connection with the outside world. Louvres provide protection from the sun and cast natural ripples of light and shade on the interior. Bold colour is introduced at lower levels, articulating the building’s function as a children’s hospital through the transparent façade.

For most, hospitals are an unfamiliar environment, and because many have evolved over time they are, too often, confusing and intimidating. There is some risk that the experience of specialist centres, treating more serious cases, exacerbates this problem, so future design needs to re-establish an experience of clarity, calm and efficiency. Maggie’s Centres, located across Britain and inspired by the blueprint for a new type of care set out by Maggie Keswick Jencks, place great value upon the power of architecture to lift the spirits and help in the process of therapy. Foster + Partners is designing a new



**Fig 2. Model of Maggie's Centre, Manchester.** Copyright Aaron Hargreaves/Foster + Partners.

centre close to the Christie Hospital in Manchester (Fig 2). Conceived as a welcoming 'home away from home', it is a place of refuge where people affected by cancer can find emotional and practical support. The Centre combines a variety of spaces, from intimate, private niches to a library, exercise rooms and places to gather and share a cup of tea. The heart of the building is the kitchen, which is centred on a large, communal table. Staff will be unobtrusive, yet close and accessible. Natural light, greenery and garden views permeate throughout, and the entire western elevation extends into a wide veranda, which is sheltered from the rain by the deep overhang of the timber roof. A greenhouse extends from the south of the building, where it is integrated with the structure like the cockpit of an aircraft. The greenhouse provides a garden retreat, a space for people to gather, work with their hands and enjoy the therapeutic qualities of nature and the outdoors, while protected from the rain.

The hospital of the future will be moulded by the way in which healthcare professionals are being educated today. In the United States, the practice is working with the Cleveland Clinic and Case Western Reserve University towards a new model, where doctors, dentists and nurses will train alongside one another in an integrated facility. This new Health Sciences Campus combines unique individual areas of learning with adaptive teaching spaces that encourage interaction and promote less distinction between the healthcare professions. A key aim is to encourage greater collaboration and develop new levels of inter-professional understanding and respect. The new teaching spaces are centred around a handsome covered courtyard, which will be landscaped to create a natural focus equivalent in this demanding climate to the links with nature explored at Bath. This project also looks towards emerging technology to foster communications that stretch beyond the campus, to remote practitioners and those who may otherwise find such education inaccessible. It will incorporate emerging technology,

such as virtual simulation, making subjects like anatomy more accessible to greater numbers of students. It also reinforces the importance that is attached to the future of education by one of the world's leading healthcare institutions.

On an urban scale, the masterplan aims to open up the Clinic's public spaces to the wider city and establish a coherent identity for the whole campus. New landscaped courtyards, parks and squares will provide a welcoming, natural environment. Pedestrian routes through the site will connect to a sequence of glazed circulation pavilions and courtyards, which provide shelter from the extremes of Cleveland's weather, while maintaining a connection between patient spaces and the outside world. The project also includes new buildings for the Neurological Institute and Cancer Institute, in addition to new research and administration facilities. Reversing the dominance of the car, the roof of a new parking structure is to be laid out as a garden, providing a new amenity for the campus and improving views from the upper-level patient rooms.

### Reducing costs and streamlining processes

Cost is clearly an important consideration for future healthcare. For example, an increasing number of small companies are offering services at minimal cost that large providers and institutions currently charge at a far higher rate. This is akin to the move away from expensive, overly complex software towards easily accessible apps for simple tasks. In the future, large healthcare institutions may generate far less income from simple procedures like outpatient blood tests, relying more heavily on major procedures to cover their costs. Pressure on costs and efficiencies from insurance providers can only reinforce this.

Foster + Partners has already discussed with clinicians how an architectural approach could accommodate the streamlining of the operating room process. For example, even



a relatively straightforward operation such as mastectomy may involve several procedures and take several weeks once reconstructive surgery is completed. This could be streamlined by programming Operating Rooms and surgeons in teams, so that one patient goes directly from the initial operation to reconstructive surgery. This 'production line' approach makes better use of facilities and resource, reduces costs and can improve prognosis for faster, less traumatic recovery. Of course the most expensive, heavily serviced and technology-dependant spaces in hospitals are generally the Operating Rooms, but despite this, many are still used heavily in the mornings and not at all during afternoons. This redundancy is rooted in existing working methods and schedules – it seems unlikely to prove sustainable in the future.

### Conclusion

If the design of future hospitals is led by the needs of patients, the training of healthcare professionals, as well as greater patient expectations, an ageing population and economic pressures, it is not simply a case of designing today's hospital in a better way – successful design needs to anticipate and respond to emerging issues. The industry is increasingly

competitive. A hospital is like any other building in that, without customers, it does not exist. Perhaps the most significant lesson to draw from the design of CircleBath, which has informed the practice's work in Cleveland, Iowa and Manchester, is the therapeutic value of controlled natural ventilation, a view and integrating planting to bring the natural world into the healthcare environment. Such things cost very little but bring real benefits to patients, staff and visitors – they demonstrate that the difference is not one of cost, but quality of design. A better environment is not necessarily more expensive – it is about how wisely the precious resources of time and money are spent. ■

### References

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