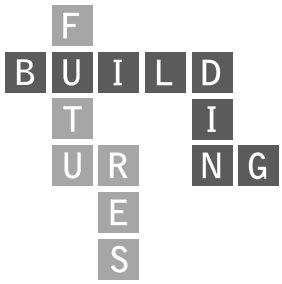
2020 vision:

our future healthcare environments

A summary of the key findings of the 2020 vision research project – a multi-disciplinary study to identify current social, economic and technological trends and how they might influence the design of healthcare environments over the next 20 years

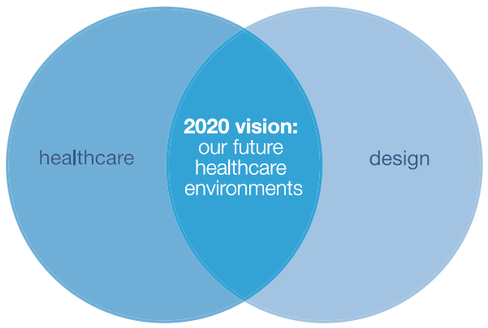


The 2020 project

No one can predict the future. What we can do is look ahead and think about what might happen so that we can begin to prepare for it. The future is shaped by current trends and the decisions we make today.

The 2020 Vision Research Project was commissioned by The Nuffield Trust, the RIBA Future Studies Group and undertaken by the Medical Architecture Research Unit (MARU) at South Bank University to identify current social, economic and technological trends and how they might influence the design of healthcare environments over the next 20 years.

Over 100 health and design professionals participated in focus groups and discussions over several months. Their findings are not a definitive agenda for change but rather a set of ideas which, it is hoped, will stimulate creative dialogue between healthcare and design experts in order to foster the development of quality buildings for future healthcare.



The context

We are in the midst of the largest public sector building programme since the 1960s. Total public sector capital expenditure is set to rise from £25.3bn in 2001/02 to £34.4bn in 2003/04, a 30% increase across two financial years and an increase of around 60% on 1999/2000 expenditure. Of this, some £7bn will be spent on construction, rising to £18.6bn in 2004.

Spending increases are occurring across all sectors. The NHS capital budget is growing from £2bn to £2.6bn, supplemented by £3.5bn committed private sector capital spending across the whole of the public sector, channelled through the Private Finance Initiative (PFI).

This is the good news. However, excellence in the quality of public buildings remains the exception not the rule. New forms of procurement contracts, such as PFI, will require massive effort if design quality is to be secured on a regular basis. The key question is will all this extra spending result in the high quality healthcare environments we need over the next 20 years? Will the new healthcare buildings being built today be able to adapt to the changing needs of society in the future? The 2020 Vision Research Project suggests that the current generation of healthcare buildings will have only limited relevance in the future.

The study identified a number of influences that will have a significant impact on the provision and the design of healthcare environments in four settings over the next 20 years: the home, health and social care centres, community care centres, and specialist care centres.

Over the next 20 years the UK will experience:

- **Very rapid developments in information and medical technology**
  Innovations in both information and communication technology and bio-medical technology are likely to produce the greatest changes in the delivery of healthcare, and in particular, the design of healthcare environments.

- **A demographic shift to an increasingly ageing population**
  Over the next two decades the UK population is projected to grow by 4-5m from an estimated 59.9m in 2001 to 64m in 2021. Of this 64m, 22.3% will be of pensionable age and there will be at least 1.6m people aged over 85. A higher percentage of older people will result in greater demands on health services. An increase in life expectancy from 74.9 years to 78.5 years in 2020/21 for men and 79.7 to 82.7 years in 2020/21 for women will result in many more people living with chronic conditions.

- **Citizens becoming more informed about healthcare choices and decisions**
  The continued development of consumer culture and the growing availability of information will lead to increased public expectations about how care is delivered and the quality of the public buildings in which it is delivered. Due to the internet, media coverage and initiatives such as NHS Direct citizens are becoming more informed about healthcare issues allowing them to take more responsibility for their own health.

- **Modernisation of the health and construction industries**
  The modernisation of both the healthcare and construction industries – the two key industries involved with the planning and design of healthcare environments – is leading to:
  – new forms of procurement based on partnering and long-term relationships
  – greater integration of design and construction
  – increased levels of performance measurement and monitoring in both industries and
  – the development of strategic planning and design information to support the planning, design and building programme for healthcare environments.

Future healthcare environments

From the identification of these influences and subsequent research we can make informed predictions about the future organisation and design of healthcare environments.

- **New information technology will change the location of different parts of the health service**
  Developments in information and biomedical technology in the field of sensors and remote monitoring will mean that basic diagnostics, interventions, rehabilitations and nursing care will move out of hospitals and into home and community settings.

- **Public access to health information will continue to grow rapidly**
  Information and communication networks will link all healthcare sites and ‘smart technologies’ will provide decision-making support, enhancing collaboration across the health service and promoting integration with other agencies. E-health may become the norm for patients in email contact with primary care clinicians.

- **Tele-medicine will bring care closer to the patient**
  Video conferencing will be developed at a number of levels – between the home and the clinical worker and between primary and specialist care. ‘Store and forward’ systems such as emailing text, images and sound recordings will allow medical information to be sent from primary to specialist care for opinion.

Advances in medicine, biomedical engineering and information handling will create the option of cascading care out of hospitals into settings nearer to where people live. The 2020 Vision Research Project identified four potential settings for healthcare over the next 20 years: the home, health and social care centres, community care centres, and specialist care centres.

1

Home care

- New information and biomedical technologies will allow many more patients to be cared for in their own home through a seamless partnership between health and social care
- Remote monitoring of care using information and biomedical sensor technologies will provide information about the patient's condition and allow patients to self-administer medication using automated drug delivery systems
- Chronic diseases, disabilities and rapid intervention in a crisis will increasingly be managed at home

Homes should be designed to:

- Be adaptable to changes such as household structure, home working, and episodic or sustained periods of social and healthcare
- Provide building infrastructure for 'smart' communications and sensors

2

Health and social care centres

- These will bring together primary healthcare, social care, information and advice, and voluntary support groups to provide seamless care from pooled budgets
- Centres will be developed around existing care provision to allow for local diversity of organisation and design
- NHS Direct will be the gateway to out-of-hours care, primary care, social care and emergency care, but the GP will continue to be the gatekeeper to specialist care
- Centres will include nurse-led minor injury treatment and walk-in services, healthy living centres and outreach specialist consulting including using direct tele-medicine consultations

Health and social care centres should be designed to:

- Support interdisciplinary teams working within a mix of dedicated and shared spaces
- Provide a variety of room types and spaces with varying patterns of use such as welcoming public areas, restful social rooms and confidential and dignified private spaces

3

Community care centres

- Centres will provide basic diagnostic services, day interventions and nurse led in-patient care
- Additional services might include child development, mental health resources, day centres for older people, nursing homes and palliative care centres to suit local needs
- Consultation and day interventions will be undertaken by primary care practitioners and specialists, either face to face or by tele-medicine links
- This work will be supported by local automated pathology testing and basic imaging diagnostics with reporting links to specialist care units

Community care centres should be designed to:

- Be landmark buildings with local character that are intimate in scale and contribute both physically and socially to the regeneration of the local community
- Offer a diversity of spaces and room types for patients and staff
- Create a diverse and therapeutic environment with user control and a sense of being connected to the outside world

4

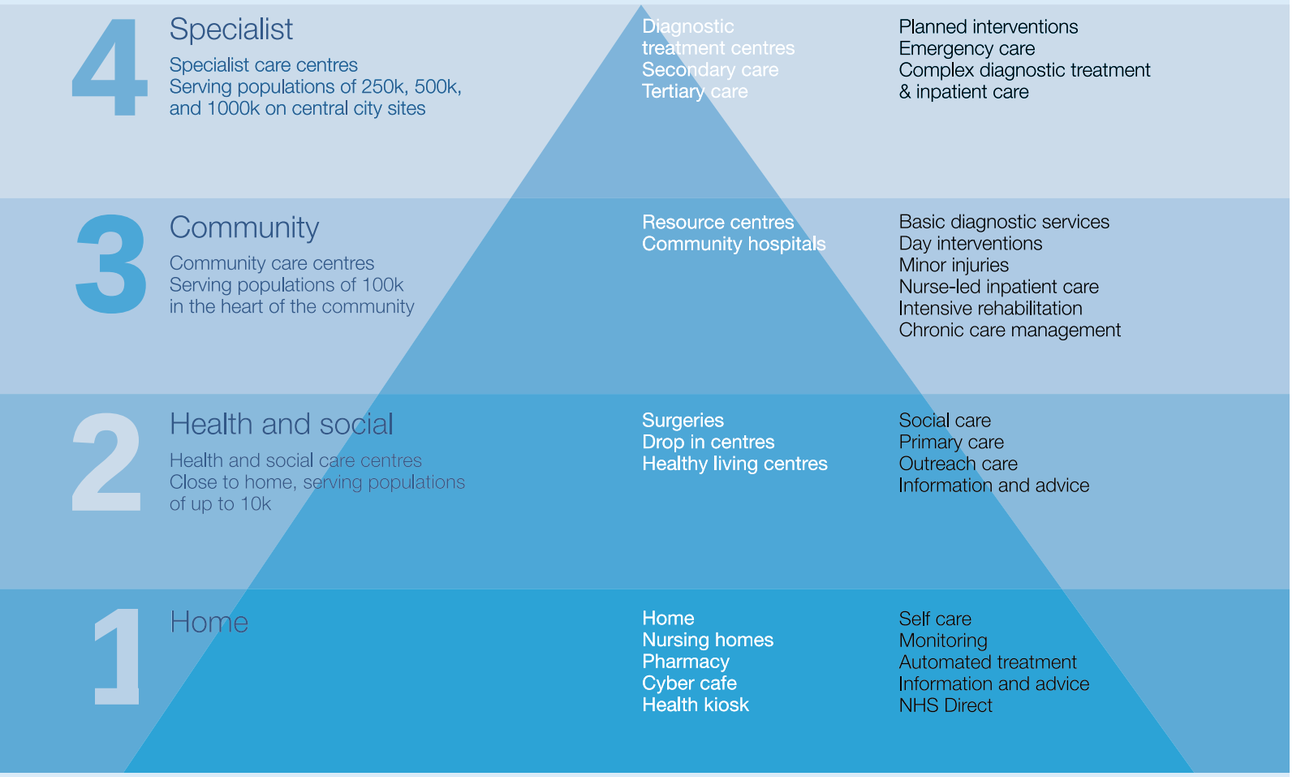
Specialist care centres

- Only care that needs a high technology environment with specialist equipment and skills will remain in specialist care centres
- Some specialist centres will have more complex equipment, skills and services for larger catchment populations
- Centres may benefit from off-site industrial and support zones which are more efficient at a larger scale, and will serve a number of specialist centres
- As these centres will provide only specialist care they will be physically smaller than the current generation of hospitals

Specialist care centres should be designed to:

- Be significant public buildings that are easily identified and located on central city sites well connected to public transport networks
- Incorporate masterplanning of sites in urban and rural contexts taking into account contribution to place and community, environmental impact and need for development and change over time
- Align the clinical need for sophisticated, highly engineered spaces with a calming and supportive ambience for patients and staff
- Balance the needs of clinical observation with patient privacy
- Reduce the overall scale of the building by clustering services into centres and focus the movement of patients and visitors only to the parts of the building that relate to their visit
- Make clear distinctions between public, social and private spaces

Four settings for patient centred care



The capabilities of information and communication technology are progressing rapidly but the NHS is not yet taking full advantage of the opportunities it offers. Two case studies highlighted below outline the potential benefits

Case study 1:

Tele-dermatology, Kingston on Thames

A pilot project in tele-dermatology at Kingston on Thames Hospital has shown how direct electronic access between primary and specialist care can dramatically reduce physical referrals. It was estimated that one in eight physical referrals at Kingston involved dermatology, and that approximately 85% of these referrals could be avoided with technology assisted communication between GP and specialist using high quality images of the patient's skin.

The results were encouraging and showed that:

- The average waiting time between first GP consultation and diagnosis was reduced from 91 to 10 days
- 92% of images taken were suitable for diagnosis
- 65% of patients were treated in primary care without the need for a face-to-face specialist consultation

Source: Primary Care Today

Case study 2:

Health information network, Cornwall

In 1996 a health information network covering 2,000 sq miles was set up in Cornwall, connecting all healthcare sites in the area via an integrated voice and data network accessed through a single switchboard. This project is now being taken forward as a pilot project for others to learn from.

Key points:

- All connections are free giving savings in phone bills and operator costs
- The network consists of 4,500 healthcare professionals across 100 sites sharing a single patient index
- 800 hand-held computers allow nurses making home visits to enter data immediately
- All GPs are able to make 'live' patient bookings, hospital appointments and checks on patient admissions
- The patient feels as if they are treated by a single entity while being passed between several administrative bodies
- The system makes use of interactive video and tele-radiology technology
- X-rays taken in nurse-led minor injuries units are transmitted to the consultant in the main hospital for diagnosis
- Video conference contact with A&E specialists
- Remote consultant sessions through the network facilitated video link

Source: BT Health, Community Intranet, www.bthealth.com/casestdy/cstudy/case6.htm

Implications for the NHS

The NHS is currently procuring over 70 new conventional hospitals, all on the basis of 30-year long PFI contracts. The 2020 vision study suggests that many of these buildings could be largely obsolete well before the end of this period, despite the fact that the tax-payer will still be paying for the capital cost of the buildings.

NHS Estates currently spends less than £0.38m on research into its future building needs, compared to over £30m on its policy and research programme. The study suggests that far more work is required if we are to invest now in building stock that is relevant to healthcare delivery in 20 years time.

The study also suggests that there should be greater focus on primary healthcare provision. The NHS commitment to provide community based one-stop centres is probably closest to the future mapped out by the report. In the next 12 months CABE and NHS Estates will be collaborating on a series of competitions for the design of these one-stop centres.

Implications for architecture and construction

The design process can be a catalyst for change, encouraging fresh approaches to both the organisation of healthcare and the design of the environments in which it takes place. There needs to be an iterative exchange between informed clients and expert designers in order to explore the potential.

The current reality is that the vast majority of the design provision is disengaged from the needs of our healthcare system. There is little or no opportunity to specialise in healthcare design in architecture schools and there is a worrying shortage of skilled professionals to build and fit out new hospitals and healthcare centres.

There is also a need to engage with house-builders to ensure that the homes that are being built are adaptable to become a setting for provision of healthcare, including post-operative recovery and palliative care.

The time is right to engage health and construction industry professionals in discussions on how to decentralise and modernise healthcare. There is a sense of urgency in making full use of the talents available to the healthcare system, not only in relation to science, technology and architecture but also the development of public services, social policy and education.

The 2020 vision research project was commissioned by The Nuffield Trust, the RIBA Future Studies Group and undertaken by Susan Francis and Rosemary Glanville at the Medical Architecture Research Unit (MARU) at South Bank University.

Over 100 health and design professionals participated in focus groups and discussions over several months. These were chaired by: Richard Burton, ABK Architects; Kate Harmond, Clinical Director, National Patients Access Team; Geoff Shepherd, Chief Executive, Guy's & St Thomas's Charitable Foundation; Ann Noble, Chair of Architects for Health, and John Cooper, Avanti Architects.

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Following on from the successful start made by RIBA Futures Studies, Building Futures was established in April 2002 as a joint venture between CABE and RIBA.

Its aim is to create a forum for discussion about society's changing demands of the built environment and, consequently, the built environment professions over the next 20 years and beyond.

The original report can be ordered from The Stationery Office, ISBN number 0117028010.

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