

BEYOND ESTATES STRATEGY? BEYOND MASTER PLANNING? OPEN PLANNING FOR FUTURE HEALTHCARE ENVIRONMENTS

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Abstract

This paper explores open planning of the future healthcare estate beyond the traditional hospital site. It proposes the need for an open planning approach which can be applied to the changing healthcare environment within acute sites and across settings. Existing strategic planning approaches and investment choices will need a clear understanding of their future logistics, technological change and environmental stewardship. At the same time the vertical integration of networks of care are opening up the possibility of organisations taking on a sub-acute community provider role of service and estate. Current processes are based on single site, long term, top-down, phased development 'master plans', however a new range of development scenarios are emerging across Europe. They illustrate, in part, the theoretical development of compact 'open' building systems and 'core' hospital concepts. This paper proposes scenario planning concepts as a strategic planning technique to facilitate the potential of an open approach that is better aligned to a healthcare organisation's future business plan.

Keywords: Strategic healthcare estate planning, scenario planning, open building, open planning, change-ready architecture, systems separation, integrated care networks

INTRODUCTION

The aim of this paper is to explore the future strategic planning of the healthcare estate utilising open planning techniques. Hospitals considered state of the art even 5 years ago must be able to respond to accelerating future technological change, advances in medicine, interventional surgery and biomedical research. At the same time, information handling technologies are enabling commissioning policy that looks to move from centrally managed function-based services to locally driven based care. This change emphasises a migration of care away from the traditional hospital setting and a future estate response will be informed by managed clinical and social networks. Patient centred care for those with complex problems will not conform to a single coherent organisational model of the hospital but a range of development scenarios (MARU 2001, DH 2006, Rechel et al 2009).

UK capital spending in public services is forecast to fall in real terms over the next 5 years and future developments will be tactically driven for best use of clinical space with opportunities for improved usage and effectiveness, will need to consider redesign and re-engineering, back-log maintenance and refurbishment and not just new build projects to meet service demand (Rechel et al, 2009).

This requires hospital organisations and their service commissioners to prepare a strategic policy development for an efficient asset base that is economically viable in relation to infrastructure and service costs (Gershon 1999). A competing, consumerist drive will inspire

and introduce an incentive system for asset rationalisation with a range of providers and funders. This may drive asset rationalisation outside the 'silo hospital estate' and the reconfiguration of the hospital with sub-acute centres of care in neighbourhood settings. On the existing large acute sites, service clusters may follow medical and surgical specialities, including emergency care with diagnostic services accessible to the appropriate care (MARU 2001, Rechel et al 2009). The patient's accessibility to those sites will dictate the organisation of the components of care within networks of managed care pathways. Hospital organisations may expand highly specialised or tertiary level of services such as cancer care, single speciality elective units or emergency care streams incorporating observation or assessment units (Boluijt and Hinkema 2005).

The perception of the 'mono cultural' hospital estate, stand alone from their urban community where local authority planners have a limited role is being challenged by a 'sustainable communities' agenda that looks to audit and enhance the accessibility and environmental performance of health care buildings. Health organisations are encouraged to operate within a wider local and regional planning framework and an evaluation of estate with a regulatory focus on low carbon management and low energy performing environments. (DCLG 2007, EnCODE 2008).

The current acute estates strategy approach appears outmoded in that it mostly focuses on the spatial response of single sites and does not provide for engagement with the wider community and local strategic partners. Estate strategy is informed by a data set of building conditions, utilisation, and functional suitability of the infrastructure (Heavisides 2009). This analysis may ensure infrastructure is in place for development choices but is limited in scope where the renewal or new build facility may set out for an environmentally efficient but not necessarily an operationally flexible response to proposed networks of care. Estate strategies can be 'fettered' and disrupted by service strategies and a flexible, dynamic plan that can adapt to a range of service plans is required.

Strategic master planning techniques has evolved since the 1950s from Herbert A Simon's work on the theories of master planning; a plan as an outcome of complex process decision making processes. However, the architecture of master planning for healthcare sites has increasingly seen as starting point: for clients a potentially costly architectural prescription of complex processes and for architects a 'vare added' service. Therefore master planning is the wrong description i.e. too prescriptive and should be developed to allow strategic decision making that allows an opportunistic, more radical and meaningful view. With the evolution of urban planning techniques the term has regained some of its original meaning (Verderber and Fine 2000). A master plan is seen as a comprehensive plan, a description both visual and written, of the potential of a place (Stewart et al 2004, CABE 2004) and describes a process by which organisations undertake analysis and prepare strategies to plan for major change in a defined physical area .

The challenge for clients and their designers is to reassert in contemporary terms the continuing use of the hospital site. New planning techniques should support the strategic distribution of services across settings and enhance the relationship for an open, change-ready, estate strategy that is better aligned with the clients and their community partners business processes. This describes new strategic planning technique that then focuses specifically on the need for a dynamic approach (Vogdopolou 2006).

DEVELOPMENT OF SCENARIO PLANNING FOR HEALTHCARE

Scenario planning is an evolving body of knowledge whose roots in healthcare lie in John Weeks's 1955 *Studies in the Function and Design of Hospitals*, a theory of 'indeterminate architecture' that drew parallels of planning in an 'open urban environment'.

Clinical functions could be located anywhere within the structure by tapping into service structures and interstitial zones. These ideas of hospital build typologies were further developed with in the UK 1980s hospital building programme at Greenwich for 'total adaptability' for a 'just in case' capacity, at a price and with considerable management implications. The need for 'future-proofing' designs first coined with Nucleus hospital 'systems separation' briefing material, centralised planning briefing material and specification system with the intention to control and regulate standardised 'template' buildings in terms of their size quality and cost (Worthington 2008).

The MARU Report in 1999 on the history of development of facilities in the UK NHS concluded that although these programmes successfully disseminated the role of design guidance, systems and standards they were not responsive enough to the rate of change in the healthcare environment and patient centred design requirements. However recent studies have suggested that the legacy of this centralised building programme has been a flexible healthcare estate to support changes in clinical use (Smyth 2004, Symons 2006, Montgomery 2007) where recent PFI developments have not realised the same benefits in flexible planning (Gaiser and Barlow 2007). Different design protocols developed to support the PFI process had overlooked the fundamental principles of structure and services coordination.

At the same time as Greenwich methods were being developed, the offices of DEGW were embracing a revolution in office design for corporate clients to manage the increasing speed of change and decision making associated with the longevity of buildings and the short term cycle of building services and fit-out. These concepts of short term, tactical flexibility of space utilisation or the longer term, strategic, adaptability of configuration and relationships between different spaces in a design translates to healthcare. To build scenarios in service, estates and access into the design definition and healthcare delivery process will allow options that can economically accommodate the evolving environment, technology and needs of end-users throughout a buildings life-cycle. (Worthington, 2008).

How can health and care facility planners build a portfolio of scenarios into the design so that the facility supports foreseeable and unpredictable changes in the environment and other economic and marketplace forces that will inevitably reduce a health Trust's capital expenditure?

The study of this problem using scenario planning should have the following objectives

1. Identify the types of scenarios that can be built for adaptable and flexible new health and care facilities
2. Investigate estates that can respond to these scenarios in the development of design options
3. Transfer this theoretical understanding to support change-ready health and care facility design for strategic and tactical decision making to enable flexible operations.

Planners will be required to identify activity streams, determine the different options as to how these services will be provided. Controlling information and evaluation of the ongoing overhead of Trust's estate in response to different business demands and a redistribution of local service tariffs will be essential (Rechel et al 2009). This upfront thinking should be done to understand the whole system, before delivering smaller phased sub systems changes. This staged tactical infrastructure funding needs to deliver estates that fit into a larger strategy. (HaCIRIC 2009)

The major problem is the lack of relevance and dynamism of many acute master plans, that sit in isolation of other service and financial planning initiatives. What is needed is an understanding of scenarios, what could change and with what speed.' (Hagen 2009)

The purpose of scenario planning is not to identify the most likely future, but to create a map of uncertainty and to build a broad visible understanding of the driving forces for change and ensure that the strategic objectives of healthcare providers, commissioners and regulators are achieved. Very often healthcare organisations will take three year short term view of their operational futures, which can leave them reacting to environmental changes with a potential imbalance between workforce, technology and business strategies with consequences on patient health and care (MARU 2008). They have to make hard strategic choices about how to best deliver care to address the needs of the market and to respond to customer choice.

Healthcare infrastructure must provide one of the most challenging environments in which to manage uncertainty and constructed assets such as building and technology the most expensive to operate, maintain and replace. As such the notion of 'future-proofing' and 'change ready' design is key, however in practice few have used advances in scenario planning approach. The objective of strategic scenario planning is to offer a more proactive and anticipatory approach to address more fundamental changes, see both challenges and opportunities and select the best cause of action to minimise unintended consequences. Scenario planning may help Trusts to work with multi-stakeholder teams to challenge their own assumptions to create an inter-organisational vision for local healthcare that can respond to threats and opportunities that may otherwise be missed (HaCIRIC 2009).

Scenarios like any model of the world, are used to investigate reality, and so must identify the same barriers and opportunities. Scenario planning has been mostly used today to anticipate specific threats, such as environmental pressures, political changes, or industry structure changes and to understand strategic options in light of changes of technology and regulation (Ringland 1998).

Different variations of the method to scenario planning such as those in (Schoemaker 1995; Ringland 1998; Wright and Goodwin 2009) to determine which are most appropriate for scenario planning within healthcare infrastructure planning, then define a new framework, process and set of methods and tools. New design tool interfaces with 3D visualisation techniques (and virtual 4D real change phasing) are facilitating element coordination; the logistics and engineering distribution, sequencing simulations of people and process flows and to assist workforce to prepare for change (Davis, 2008).

As such, scenario planning defines a need for a *hierarchy of decision making*, principles and process, which can be applied against the changing healthcare planning environment. As such this paper looks to build on open building, or open scenario planning principles for a healthcare environment.

OPEN PLANNING TECHNIQUES FOR HEALTHCARE ENVIRONMENTS

New techniques of systems separation or open planning are intended to flex health providers in and out of accommodation and facilitate scenario-planning between structure/engineering and the clinical activity (Davis, 2008). It is more than a tool for meeting the various models of care that exist now or will be developed. By setting out strategic operational concepts, in tandem with performance data from the estates strategy, the aim of 'open planning' is to develop a new dialogue about acute health care design, to allow a shift of more detailed decision making for clinical divisions and relationships to subsequent systems planning stages (Astley 2007). The aim is to facilitate quick service decisions around new characteristics of contemporary, modernised service change, for example increased single-bed room provision.

Open planning concepts offer a dynamic approach to future infrastructure scenario planning (Kendall 2007). This system works on two main levels:

In a Healthcare context, the more long term:

- Collective logistics; circulation (transport), supplies, IT and energy network – a distribution coordination serving many uses of:

- Individual clinical content and may require rapid change

In an urban design context this is also has parallels of, for example:

- Collective shared public space, more permanent space, surrounded by:

- Individual dispersed uses; within the urban block which are subject to continually changing forces

(Office of Properties and Buildings, Canton Berne 2007)

This approach that determines the constancies in infrastructure whilst acknowledging the uncertainties in the driving forces of change that allows those uncertainties to be manifest in the scenario planning.

This delegated planning approach and emerging ideas in the continuing use of the hospital site is used much more in Europe and to a lesser extent in the UK. These case studies illustrate in part, the development of compact open building systems and 'core' hospital concepts (Astley, Robinson, 2008, MARU 2008):

ACAD/BeCAD, Central Middlesex Hospital, UK: model of care based on care systems, pathways and protocols that do not include any traditional hospital departments with separated but adjacent elective centre

Core Hospital Project, Netherlands: Venhoven and Guthknecht's winning entry for 'Future Hospitals' rethinking the components of the hospital with a core housing only high tech and intensive care facilities.

Martini Hospital, Groningen, Netherlands: a major extension to one side of the existing hospital incorporating future development scenarios over building life cycle, referred to as a 'hop scotch' approach.

Tampere, Finland: includes the joint replacement COXA development, one of single speciality clusters with integrated research and bio medical complexes with advanced development of telemedicine

INO Canton Berne, Switzerland: major extension on an existing hospital site. The development of systems separation for a hierarchy of levels; primary, secondary and tertiary. The primary system progresses with cost certainty, the service and design development continue in operation.

Southampton NHS Foundation Trust, UK: trialling a new planning framework of decision making that delegate planning authority powers to an approval panel for collaborative approach to streamline the application process

KEY IDEAS FOR AN OPEN PLANNING OF FUTURE HEALTHCARE ESTATE

This paper proposes that the concepts of operationally change-ready systems should be embodied within scenario planning and be as much part of a healthcare organisations developmental strategic planning as other planning formats.

The objective is to augment the service plan and business plan and would develop *criteria* to allow the speedy derivation by allowing them an understanding of the potential of the open environment. Recent workshop with clients and designers (HaCIRIC 2009) has defined three levels of scenario infrastructure planning that need to be compared for their costs, benefits, opportunities and threats:

1. Strategic – a planned and integrated large scale change that could either be a whole system change or phased approach to sub systems change that is also integrated into a whole scale plan

2. Tactical – a sub system change that responds to a small scale need for change or the availability of limited resources to make such a change

3. Unplanned or opportunistic – a short term change that addresses an unforeseen need or a quick response to an opportunity to deliver an innovative solution

The marked difference to this approach is to *break away* from an estates strategy adherence to legislative and process procedures, technocracy and comprehensiveness, land-use zoning, and land development control. This is manifest in rigid (master) plans with concerns that zonal development ideas would tend to ‘fix’ the site in terms of loosing flexibility and the ability to change requirements, unresponsive to market drivers and expensive in preparation and implementation.

Shared Partnership working would open up these plans to local community’s health needs and priorities and could radically change healthcare environments whilst supporting new commissioning. Self determination of some planning consents within and across set boundaries such as the emerging Southampton model is seen as an interesting pathway as it could help the local authorities in coordinating these changes within longer term frameworks such as green transport plans.

The level of detail within an estate strategy could be too much for boards, partners and the local authority. The aim would be to link better with local plans of the area with less detail and *more adaptability operating within a joint plan arrangement*. As such the strategy needs to accommodate risk and should be loose enough to respond to policy change.

All healthcare organisations have core objectives. These will form the basis of their estates approach. Open planning scenarios must facilitate the ability for additional plug-ins and outs, within an overall infrastructure plan. That these will have various scales/levels of detail will demonstrate what could happen if there was a shift or change of use across settings for care and sites.

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