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**TNO-rapport**

**TNO-034-UT-2009-00687_RPT-CZB**

# Decentrale Ziekenhuizen; droombeeld van de toekomst of realiteit?

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| Datum | April 2009 |
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| Projectnummer | 034.20639/01.02 |
| Trefwoorden | - decentrale ziekenhuizen<br>- prijsvraag<br>- zorgmodellen |
| Opdrachtgever | Ministerie van Volksgezondheid, Welzijn en Sport<br>Directie Cure<br>Postbus 20350<br>2500 EJ Den Haag |
| Aantal pagina's | 36 (incl. bijlagen) |
| Bijlagen | - |

# Samenvatting en Conclusies

Het zoeken naar en analyseren van vernieuwende gebouwconcepten in de zorg is een van de publieke kerntaken van het Centrum Zorg en Bouw. Het centrum stimuleert die innovatie ook, door het uitschrijven van ideeënprijsvragen. Hierin worden architecten – nationaal én internationaal – uitgenodigd om hun vernieuwende visie op de planmatige, zorginhoudelijke en architectonische vraagstukken van de toekomst uit te werken.

De meest recente prijsvraag – nog onder auspiciën van het College bouw zorginstellingen georganiseerd – leverde intrigerende resultaten op.
De opgave voor de deelnemers was om voor een toekomstige stad van 160.000 inwoners de volledige infrastructuur van de gezondheidszorg te ontwerpen. De vraag die moest worden beantwoord was: Op welke manier is de gezondheidszorg in 2025 verweven met de stedelijke omgeving en hoe ziet een voorbeeldgebouw van die toekomstige gezondheidszorg eruit?

De inzenders, en ook de juryleden, bleken verrassend eensgezind van mening dat netwerken van kleinschalige, gedecentraliseerde ziekenhuisdiensten (het "gedecentraliseerde ziekenhuis") de aangewezen oplossing is voor de vele complexe vraagstukken die de prijsvraag met zich meebracht. De inzendingen benadrukten vooral de schaalgrootte van het decentrale ziekenhuis als toegesneden op de (locale) zorggebruiker, de inpasbaarheid van de voorzieningen in de stedelijke context en de eenvoudiger te leggen relaties met lokale zorgpartijen (eerstelijnszorg, thuiszorg etc.) als redenen om in de toekomst te kiezen voor decentrale configuraties van ziekenhuisvoorzieningen.

Een ideeënprijsvraag blijkt niet het meest aangewezen podium voor grondig onderzoek en doorwrochte argumentaties. De deelnemers lijken hun voorkeur voor decentrale ziekenhuisvoorzieningen voornamelijk te hebben gebaseerd op globale, optimistische verwachtingen rond maatschappelijke ontwikkelingen. Maar anecdotisch bewijs en beschrijvingen van wensbeelden vormen een onvoldoende stevige basis voor de gretigheid waarmee de inzenders van de prijsvraag het decentrale ziekenhuis omarmen. Niettemin is het toekomstbeeld dat de inzendingen schetsen intrigerend. Zo intrigerend dat het Centrum Zorg en Bouw heeft besloten een diepgaander onderzoek in te stellen naar factoren die van invloed zijn bij mogelijke decentralisatie van ziekenhuisinfrastructuur.

Het Centrum Zorg en Bouw heeft daarom in bijgaand rapport in samenwerking met het European Health Property Network (EuHPN[1]) onderzocht in hoeverre de toekomstvisie van de prijsvraagdeelnemers door reële argumenten wordt ondersteund. Berust de voorkeur voor decentralisatie op een "modegril", of zijn er inderdaad aanwijzingen dat decentrale ziekenhuizen leiden tot betere of toegankelijkere zorg van hogere kwaliteit? En is het mogelijk de factoren die decentralisatie van de ziekenhuisinfrastructuur belemmeren of juist bevorderen te identificeren?

Als eerste stap is onderzoek gedaan naar relevante wetenschappelijke literatuur over het onderwerp, zowel in de domeinen van de zorg en management van de zorg als in het domein van de architectuur. Vervolgens is studie gemaakt van actuele ontwikkelingen op het gebied van decentralisatie van voorzieningen in een aantal van de ons

[1] Het Centrum Zorg en Bouw is lid van het EuHPN

omringende landen. Deze studie is in de vorm van een aantal zogenaamde 'case studies' in het rapport verwerkt. In totaal zijn acht projecten, uit verschillende Europese landen, beschreven en kritisch beschouwd. Daarbij is met bijzondere aandacht bekeken welke decentralisatieprincipes in elk project worden toegepast, en is zover mogelijk geanalyseerd welke motivaties en argumenten van project tot project een rol hebben gespeeld.

De uitkomsten van de eerste twee stappen zijn gebruikt als basis voor het projectteam om een totaaloverzicht samen te stellen van bevorderende en belemmerende factoren en van argumenten pro en contra decentralisatie. Dit totaaloverzicht is te vinden in hoofdstuk 2.

## S.1 Conclusies

De literatuuranalyse en de diverse case-studies leveren geen eenduidig antwoord op voor de hoofdvraag van dit onderzoek. De voornaamste reden hiervoor is dat het decentraliseren van gezondheidszorgdiensten een bijzonder complex proces is, waarin vele factoren in interactie een rol spelen. De gevonden literatuur behandelt vaak één aspect of enkele aspecten van het vraagstuk van decentralisatie van gezondheidszorgdiensten. Maar een integrale beschrijving en analyse van de transitie naar decentrale diensten - inclusief de bouwkundige uitwerking en het effect op de kwaliteit, toegankelijkheid en bereikbaarheid – is nergens aangetroffen. Dit geeft in de ogen van het Centrum Zorg en Bouw niet voldoende houvast voor een conclusie. Wel is er, ook in de ons omringende landen, een toenemende belangstelling voor het decentraliseren van zorgdiensten uit het ziekenhuis en zijn meerdere plannen in gebruik genomen. Een studie naar de uitkomsten van deze initiatieven ontbreekt vooralsnog.

Wat literatuurstudie en case-studies wél hebben opgeleverd is een uitgebreid overzicht van omstandigheden die het ontstaan van decentrale ziekenhuizen bevorderen of juist tegenwerken. Gebleken is dat hierbij een onderscheid moet worden gemaakt naar:
- inhoudelijke argumenten, die betrekking hebben op de wenselijkheid van decentrale ziekenhuizen per se;
- bevorderende en belemmerende factoren, die los van die wenselijkheid relevante implementatievraagstukken betreffen.

Onderstaand worden eerst de factoren en argumenten besproken die pleiten voor decentralisatie van ziekenhuisdiensten. Vervolgens worden de argumenten en factoren tegen besproken.

Argumenten voor decentralisatie van ziekenhuisdiensten:
- *Klinische overwegingen*; 'Voorkomen is beter dan genezen', Sommige clinici geven aan dat een versterkte eerstelijnszorg er toe bijdraagt dat de juiste behandeling op het juiste moment wordt gegeven. In die zin is het plaatsen van decentrale ziekenhuisdiensten dichter bij de eerstelijnszorg (en daarmee bij de patiënt) aan te bevelen. Deze verplaatsing wordt overigens ondersteund door de voortschrijdende medische technologie.
- *Kostenbesparingen en budgetoverwegingen ziekenhuis;* Het traditionele ziekenhuis is voornamelijk reactief ingesteld. Dure acute zorg wordt geleverd, aan patiënten met chronische condities (met acute episodes) die feitelijk eerder in de keten beter hadden moeten worden gemonitord en bewaakt. Die vroegsignalering en preventie kan in een decentrale structuur beter worden gerealiseerd.

- *Demografische trends;* De vergrijzing binnen Europa leidt tot een aanzienlijke stijging van het aantal chronische patiënten. Experts geven aan dat chronisch zieken het meest gebaat zijn bij zorg 'zo dicht mogelijk' bij huis. Dit voorkomt bovendien dat het centrale ziekenhuis 'dichtslibt'.
- *Investeringen in gebouwen en apparatuur;* Er ontstaat een toenemend besef dat het op juiste schaal en moment investeren (van schaarse middelen) in gebouwen die onderdeel uitmaken van een goed georganiseerd zorgmodel, de kwaliteit van het zorgaanbod verbetert. Dit is model waar decentrale georganiseerde ziekenhuis-diensten onderdeel van (kunnen) uitmaken. Die gebouwen moeten tevens over voldoende flexibiliteit beschikken, anders zijn het dure investeringen voor de toekomst.

Factoren die decentralisatie van ziekenhuisdiensten stimuleren:
- *Verwachtingen van de gebruiker;* Decentrale ziekenhuizen sluiten beter aan bij het verwachtingspatroon van veel zorgconsumenten met betrekking tot de wijze waarop in de toekomst zorg aan hem/haar aangeboden moet worden; bij hem/haar in de buurt, op tijden die hem/haar uitkomen.
- *Verwachtingen ten aanzien van de duurzaamheid;* Zorginstellingen staan onder druk zich duurzamer te gedragen. Ziekenhuizen zijn grote energieverbruikers en zijn veelal zodanig gesitueerd dat er veel verkeersbewegingen nodig zijn voor cliënten, familie en medewerkers van en naar de locatie. Een decentrale structuur kan helpen deze problemen te ondervangen en de verkeersbewegingen doen verminderen.
- *Verwachtingen professionals;* De professionele percepties en attitudes van clinici, medisch technici en zorgmanagers zijn nadrukkelijk in ontwikkeling. Steeds meer professionals staan open voor een grotere flexibiliteit in werkomstandigheden (tijden en locaties) alsmede werken in multidisciplinaire teams. Dat betekent dat de voor het werken in decentrale structuren noodzakelijke arbeidshouding steeds meer voorhanden is.

Als we vervolgens kijken naar de argumenten en factoren tégen decentralisatie, dan zien we dat dit deels spiegelargumenten en –factoren van de bovengenoemde zijn. Deels, want uit de literatuur en case-studies komen ook nieuwe punten naar voren.

Argumenten tegen decentralisatie van ziekenhuisdiensten:
- *Klinische uitkomstmaten;* Er komt meer bewijs beschikbaar dat de voordelen van decentrale zorgdiensten niet zodanig 'hard' zijn dat deze de basis kunnen vormen voor vérgaande beslissingen; één overzichtstudie stelt zelfs dat het overhevelen van medische zorg uit het ziekenhuis naar de eerstelijn resulteert in slechtere kwaliteit en service voor de cliënt[2].
- *Verwachtingen ten aanzien van duurzaamheid;* Er is geen bewijs beschikbaar voor een verminderd energiegebruik of afname van het aantal transportbewegingen bij decentrale ziekenhuizen.
- *Opleiding en interdisciplinair werken zorgprofessionals;* De huidige verdeling van professionals over de zorgketen is tot op zeker hoogte mede bepaald door soort en type opleiding. Op iedere plek in de keten kom je de juiste persoon tegen, in een omgeving waarin ook direct de expertise en consultatie van collega's kan worden ingezet. Topclinici benadrukken dit als een van de voordelen van het huidige

[2] Sibbald B., McDonald R., Roland M., 'Shifting care from hospitals to community: a review of the evidence on quality and efficiency', *Journal of Health Services Research & Policy*, Vol 12 No 20 April 2007 (110-117).

ziekenhuismodel, naast intercollegiaal overleg tussen specialisten (dit wordt gezien als veiliger voor de patiënt) geeft dit ook voor doktoren en specialisten in opleiding een betere basis door een groter volume en bredere specialistische kennis die aanwezig is.

Factoren die decentralisatie ziekenhuisdiensten belemmeren:

- *Het ziekenhuis als icoon:* Het traditionele alles-in-éénziekenhuis is een "sterk merk", met een grote symboolfunctie voor al zijn gebruikers en voor de bevolking in het algemeen. Het sluiten van een ziekenhuis en terugbouwen in de vormen van decentrale centra ligt politiek-bestuurlijk buitengewoon lastig.
- *Grenzen tussen sectoren;* De traditionele grenzen tussen eerste- en tweede lijnszorg, acute centra, opleidingsziekenhuizen, topklinische centra en andere afbakeningen zijn nog steeds aanwezig. Alhoewel deze grenzen niet meer zo scherp getrokken worden als vroeger, moeten er nog steeds heel wat schotten doorbroken worden, wil een maatschappelijk geïntegreerde decentrale ziekenhuisstructuur gestalte krijgen.
- *Kostenoverwegingen;* Een ziekenhuis wordt veelal betaald op basis van activiteiten/ ingrepen. Het is daarom ten zeerste de vraag of het eerder in de keten (eerstelijnszorg) uitvoeren van activiteiten en het daarmee voorkomen dat er in het ziekenhuis (dure) ingrepen worden verricht voor het ziekenhuis interessant is. Veel financiële prikkels werken momenteel averechts.
- *Investeringen in gebouwen en apparatuur;* In veel omringende landen wordt de ziekenhuissector gekenmerkt door risicomijding en door intensieve bemoeienis en toezicht van overheidsinstanties op besteding van kapitaalsinvesteringen. Ook in Nederland zijn pas recent stappen richting marktwerking gezet. Binnen een dergelijk stelsel is het niet waarschijnlijk dat innovatieve, nog niet bewezen concepten zoals decentrale ziekenhuizen, bij overheden en financiers in goede aarde vallen.

De invloed van de argumenten en factoren pro en contra tegen elkaar afwegend lijkt de balans in de ons omringende landen door te slaan richting stimulering van decentrale ziekenhuisvormen. Om die nieuwe vormen ook écht een kans te geven wijst het onderzoek twee noodzakelijke randvoorwaarden aan:

1. Om de kwaliteit en continuïteit van zorg te garanderen, is er behoefte aan één centrale regie over de zorgketen heen. Het toepassen van bijvoorbeeld een zorgmodel waarin een geïntegreerde wijze van werken met behulp van zorgpaden wordt gerealiseerd wordt in dit verband vaak genoemd. Deze zorgpaden leggen vooral de nadruk op het gebruik van zorg in de lokale georganiseerde eerstelijnzorg en een sterke regierol bij meer complexe zorgpaden.
2. De infrastructuur moet dit gekozen model, van versterkte eerstelijnszorg ondersteunen en versterken. Fysiek, in de vorm van gebouwen, en virtueel in de vorm van ICT.

## S.2 Vertaling naar de Nederlandse context

Noch de prijsvraag, noch de EuHPN-studie geven een specifiek beeld van de Nederlandse context. De EuHPN-studie richt een brede blik op de ons omringende landen, en het programma van de prijsvraag ging uit van een geabstraheerde en geïdealiseerde stedelijke omgeving. Voor het Centrum Zorg en Bouw zijn nu juist die specifieke omstandigheden, kansen, bedreigingen en (on)mogelijkheden van die Nederlandse context extra interessant. In deze paragraaf doen we daarom een poging de uitkomsten van de studie in het licht van de Nederlandse situatie te interpreteren.

De symboolfunctie van het traditionele ziekenhuis is in Nederland van grote invloed. Dit blijkt onder andere uit een aantal recente casussen, zoals de politieke discussies rond het Ziekenhuis Bernhoven, de IJsselmeerziekenhuizen en de ziekenhuizen in Zeeland boven de Westerschelde. Het blijkt buitengewoon moeilijk het traditionele ziekenhuis als verzamelgebouw voor alle curatieve zorg ter discussie te stellen, ook als daar rationele argumenten voor voorhanden zijn. Uit het publieke debat komt de zorg voort dat burgers door versnippering van het curatieve zorgaanbod in verwarring zullen raken.

Ook als het gaat om de publieke perceptie met betrekking tot kwaliteit, veiligheid alsmede uitstraling en herkenbaarheid neemt het 'centrale' ziekenhuis ten opzichte van decentrale alternatieven vooralsnog een sterke positie in. Verder speelt het sociaal geografische profiel van Nederland mogelijk een rol. De bevolkingsdichtheid gekoppeld aan een goede infrastructuur betekent dat vrijwel overal in Nederland altijd wel een ziekenhuislocatie binnen acceptabele afstand ligt. De intrinsieke noodzaak van deconcentratie omwille van bereikbaarheid ontbreekt.

Dit betekent niet dat elke vorm van decentralisatie van ziekenhuizen in Nederland gedoemd is te mislukken. Integendeel, decentralisatie-initiatieven zijn zeer welkom en kunnen op onderdelen zeer goede aanvullingen zijn op het reeds beschikbare aanbod. Waarschijnlijk zal dit echter niet leiden tot directe afbouw van het 'centrale' ziekenhuisaanbod, maar tot aanvullingen op dat aanbod.
De impuls voor de aanvullingen komt zowel voort uit de in Nederland geïntroduceerde marktwerking, als uit initiatieven tot optimalisatie van het zorgaanbod in de zorgketen. Die laatste impuls ondervindt nog wel veel hinder van organisatorische en financiële verkokering.

In de Nederlandse praktijk zijn diverse voorbeelden van dit aanvullende aanbod te vinden. Een voorbeeld daarvan is de patiëntengroep met chronische aandoeningen die zo dicht mogelijk bij huis worden behandeld, maar nog wel onder supervisie van hun specialist uit het ziekenhuis staan. Ook de concernvorming binnen de zorginstellingen leidt er toe dat de keten vanaf huis tot aan opname en behandeling in het ziekenhuis (evt. inclusief en ontslag en revalidatie) binnen de keten van het zorgconcern kan plaatsvinden en kan worden geoptimaliseerd naar de plek in de keten waar kosten en kwaliteit het beste in overeenstemming zijn. De organisatorische en financiële verkokering binnen één concern zijn eenvoudiger te regelen dan in het geval men met externe partijen moet samenwerken.

Een buitenlandse benadering die in de Nederlandse context kansrijk zou kunnen zijn is de zogenaamde 'centers of excellence' aanpak die we kennen uit bijvoorbeeld Noord-Ierland en Finland. Door een (vrijwillige) beperking van het functiepakket kunnen op specifieke plekken expertise-centra worden opgezet. Deze specialiseren zich in bijvoorbeeld hoog volumineuze ingrepen of complexe aandoeningen. De gedachte is dat deze 'centers of excellence' beter toegerust zijn om bepaalde specifieke zorg te leveren en dat dit ruimschoots opweegt tegen het mogelijke ongemak dat patiënten ondervinden van langere reisafstanden. Deze aanpak veronderstelt wel een verregaande vorm van samenwerking tussen verschillende zorgaanbieders. In het huidige Nederlandse stelsel spreekt dit niet vanzelf.

Wel kan de zorgverzekeraar in dit verband een belangrijke rol spelen, net zoals hij dat kan bij het overbruggen van de kloof tussen de eerste- en tweedelijnszorg. De zorgverzekeraar ondervindt namelijk wel een directe prikkel om de zorg/preventie daar neer

te leggen waar deze voor de groep verzekerden waarvan zij de belangen behartigt, het beste kan worden aangeboden, kijkend naar het beste integrale resultaat van kwaliteit, bereikbaarheid en kostenefficiëntie. De verzekeraar bevindt zich in een positie die de mogelijkheid biedt om direct te sturen op zorgverlening in zorgketens waarin de huidige eerste- en tweedelijnsbastions worden opgenomen. Eén van de angsten bestaat uit de mogelijke beperking van de keuzevrijheid van de cliënt, deze zou mogelijk in het gedrang komen. Ook de zorgverzekeraar ontkomt daarnaast niet aan de problemen rondom de professionele autonomie van artsen en specialisten en de financiering van de individuele (keten)partners.

Dit laatste punt maakt tevens duidelijk dat de grootste veranderingsimpuls om decentralisatie van ziekenhuizen tot een succes te maken, ook vanuit de zorg-professionals zelf moet komen. Het decentraliseren van dienstverlening vanuit het ziekenhuis naar lokaal georganiseerde eenheden vergt een cultuuromslag. De casestudies tonen aan dat betrekken van het personeel bij de verandering en hen inzicht geven en verantwoordelijk maken voor het decentraliseren van essentieel belang is. Zonder goede argumenten vóór het decentraliseren van zorgdiensten en stimulerende maatregelen vanuit de organisatie zal het moeilijk zijn om zorgprofessionals te bewegen tot 'uitplaatsing' uit het ziekenhuis. Zonder hun medewerking blijft een decentraal ziekenhuis een leeg gebouw.

## S.3 Resumé

De studie heeft aangetoond dat er nog steeds een grote kennislacune is tussen de visie op de zorg en het ontwerpen van een gebouw waarin zorgdiensten worden aangeboden, specifiek daar waar het gaat om decentraal aangeboden ziekenhuisdiensten. De visionaire plannen van de inzenders van de ideeënprijsvraag, de uitgevoerde studie door het EuHPN en de professionele opinie van het Centrum Zorg en Bouw tezamen geven geen eenduidig antwoord op de vraag of het decentrale ziekenhuis een droombeeld van de toekomst blijft of realiteit zal worden. Wel is een aantal belangrijke factoren en argumenten in kaart gebracht die volgens het Centrum Zorg en Bouw van invloed zijn op de discussie over decentrale ziekenhuizen.

Tot op heden zijn er echter weinig (internationale) voorbeelden van decentrale vormen van zorg die gepaard gaan met een afbouw van het traditionele ziekenhuis. De inzenders van de prijsvraag hebben zeker de tijdsgeest te pakken gehad met hun ideeën over decentrale ziekenhuizen en lopen daarmee wellicht vooruit op collega's uit de medische professies. Het ontbreken van een gedegen onderbouwing die de gekozen decentralisatie als oplossing ondersteunt, is voor de komende jaren echter nog een groot manco. De vooruitzichten van een structuur waarin decentrale ziekenhuisdiensten mogelijk betere en goedkopere zorg voor cliënten, kunnen opleveren en een daarmee duurzamer zorgstelsel kan ontstaan, is een dusdanig aantrekkelijk beeld dat het de moeite waard lijkt om dit onderzoeksthema te blijven volgen. Het Centrum Zorg en Bouw zal dan ook op dit onderzoeksgebied in de komende jaren actief blijven.

# Contents

# 1 Decentralised Healthcare Facilities

March 2009

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## 1.1 Executive Summary

### *1.1.1 The task*

In 2007 the Netherlands Board for Healthcare Institutions (NBHI)[3] organised a competition for healthcare architects entitled *Healthcare 2025: Buildings for the future.* The competition asked entrants to design the healthcare infrastructure for a hypothetical Dutch city of 160,000 inhabitants in the year 2025, taking into account the future direction of healthcare practice, technology, and policy, as well as developments in architectural design.

The competition organisers noted that a large number of entries proposed solutions based on decentralised care, often incorporating some form of hub and spoke configuration: the idea that future healthcare will mostly take place in community settings, with a high level of citizen engagement in health monitoring and health promotion, and with visits to acute care environments – as inpatient or outpatient – becoming less frequent, and of shorter duration. The competition jury commented on this common theme, but also noted that most of the design teams did not appear to have a very comprehensive view of the scale or complexity of developments in the healthcare sector.

It is clearly preferable that healthcare architects, who must interface with hospital managers, clinicians, healthcare planners, municipal leaders and capital investment experts, should have a strong, evidence-based understanding of the future direction of healthcare. Furthermore, they should have the means to translate that understanding into affordable, effective healthcare infrastructure. This is critical to designing and providing facilities that are fit for purpose now, and in the future.

The NBHI commissioned this report from the European Health Property Network (EuHPN), to review to what extent such evidence exists, as the starting point for an assessment of whether healthcare architectural practices are really making use of existing knowledge, or simply following design and planning fashion. There is no doubt that there are real questions around the appropriate location of healthcare, and this report also examines the principal drivers for and against decentralised services and infrastructure.

### *1.1.2 Method*

The method used was to conduct a survey of published and 'grey' literature, to examine a number of contemporary case studies of major capital investment projects, and to draw on opinion provided by European Health Property Network (EuHPN) members and associates. The capital investment projects in question included region-wide programmes, individual hospital reconfigurations, and examples of the planned transition of services from the secondary care sector to community/primary care, many of which are case studies included in the EuHPN / European Observatory 'Investing in hospitals of the future' study.

The outcomes of each of these three approaches were synthesised to provide a fuller response to the key questions around the decentralisation of services and infrastructure, and the degree of 'penetration' of this evidence in the world of healthcare architecture.

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[3] The NBHI has subsequently become the Dutch Centre for Health Assets (DuCHA), part of TNO (Netherlands Organisation for Applied Scientific Research).

### *1.1.3 Conclusions*

On the whole, we found that there is a relative absence of literature directly connected with the questions addressed in this report. In part, this may be because there are as yet very few practical examples of healthcare systems that have undergone a transformation from the hospital-centric model to a form of integrated, community healthcare provision, and even where this may have occurred there has been little or no structured and robust evaluation. Nonetheless, we did find a small number of key documents which provide some valuable insights, and these are discussed in the main body of the text.

It is worth noting here that the literature survey showed a need to distinguish between decentralised healthcare management, healthcare services, and healthcare infrastructure.

There is a well-defined literature on healthcare management which concerns itself with where best to site decision-making (strategic, tactical, and operational), and how power and responsibility should be negotiated between the various actors. This area of study was not considered relevant to this report, and was therefore excluded.

The literature did not always distinguish clearly between decentralised services (where to put the people) and decentralised infrastructure (where to put the buildings). However, since it is difficult to manage a transition from one type of service provision to another (say, from the hospital-centric model that has been in place for many decades, to greater reliance on polyclinics and/or community health centres) without major changes to the health estate, it was broadly accepted that factors influencing one aspect of decentralisation will usually have an effect on the other. Thus, those reports and papers that discuss a move towards community-based care generally recognise that this has profound implications for capital investment programmes, and vice versa. Accordingly, in this report we use 'decentralisation' and 'centralisation' as referring to both services and infrastructure. The paradox, however, is that despite this acknowledgement, moves to integrate planning processes (particularly cross-sectoral) generally seem to be weak and in the main ineffectual.

The combination of literature survey, case study analysis, and discussion with expert practitioners suggested the following as drivers towards decentralisation of services and infrastructure:

- *Clinical considerations*. 'Prevention is better than cure'. Some clinicians argue that an expanded community health sector will result in a greater likelihood of achieving the right treatment at the right time, aided by emerging medical technologies. This also results in fewer and shorter hospital stays.
- *Costs and hospital budgets*. This is the argument that the reactive model of care in acute hospitals (often dealing with acute episodes of patients with underlying chronic conditions) is too expensive, and becoming increasingly unaffordable. In other words, health planners must find a way to connect with the public, such that patients are monitored, and treated, before they require increasingly expensive interventions.
- *Social expectations*. There is some evidence that the public expect medical treatment to be provided at more convenient times, and in locations that are easier to access.
- *Environmental expectations*. Many health services want to reduce their carbon footprint. Hospitals are major consumers of energy resources, and their locations

often require patients and staff to undertake considerable journeys by car or public transport.
- *Demographic trends.* As Europe's population ages, there will be a greater need to cope with chronic illness, including dementia. Most clinical opinion is shifting markedly in favour of localised care wherever possible for most chronic illness.
- *Capital expenditure.* There is an increasing realisation that capital investment in healthcare facilities should encourage the construction of facilities that support the most appropriate care models, and that have sufficient flexibility to cope with future changes. Failure to get this right will be expensive.
- *Workforce expectations.* The education and training of clinicians, medical technicians, and healthcare managers, is changing. Many practitioners now expect greater career flexibility (in terms of hours worked and opportunities to work in different settings) and are more receptive to cross-boundary team work.

The factors that encourage a policy of decentralisation are open to challenge, and we found a number of 'anti-drivers' that either promote the status quo or suggest advantages in centralising at least certain services and facilities. Some of these anti-drivers are the other face of the drivers listed above – simply an opposing point of view – while others do not have this correspondence. They were as follows:
- *The hospital as icon.* The hospital – whether teaching, district general, or community – figures very strongly in the public's view of the state of a health system. It is extremely difficult to overcome this 'pull', and trying to do so is generally unpopular with politicians.
- *Boundaries between sectors.* Although the traditional boundaries between primary care, acute hospital care, and research/teaching functions, are becoming less clear, they still exist. It is often easier for designers and architects to work with the status quo, thus embedding existing assumptions and prejudices.
- *Clinical considerations.* There is evidence that the benefits of decentralised services are not as clear cut as some commentators claim, with at least one study indicating that a relocation of services from the acute to the community sector resulted in a poorer service to patients.
- *Environmental expectations.* We could find no authoritative evidence that dispersed health facilities would consume less energy and resources, in total, than a single hospital site.
- *Capital expenditure.* Where capital investment decisions are strongly influenced by agencies that are highly risk-averse and concerned primarily with infrastructure as opposed to service delivery (e.g. Private Finance Initiative consortia in the UK), it is unlikely that they will consider the development of healthcare infrastructure as a 'lever for change'. They will tend to favour known, tried and tested (and low-cost) designs for hospitals and clinics as a means of optimising their profit margins.
- *Workforce expectations.* The current distribution of health service provision is, to some extent, determined by the education and training needs of the medical personnel who provide care and cure. Some senior clinicians argue that this benefits patients on safety grounds, since with a greater concentration of specialist services junior staff can acquire the in-depth knowledge and experience provided by a high volume case load.

A number of influential commentators have directly addressed the drivers and anti-drivers summarised above. On the whole, their findings indicate that future healthcare will need to change through:

1. Adopting an integrated, whole systems care pathway approach which emphasises health promotion and community-based, enhanced primary care.
2. Developing a health estate that supports and enhances this model of care.

However, much of the discussion around this direction of travel is speculative and aspirational. There are as yet few examples of successful transition from the existing modes of health provision to a decentralised service. Healthcare architects have certainly captured the prevailing mood, but it is doubtful whether they have concrete evidence to back up their proposed solutions, of the type presented in *Healthcare 2025: Buildings for the future*.

## 1.2 Introduction

The Netherlands Board for Healthcare Institutions (NBHI) has established a tradition of stimulating new thinking in the field of health facility design and planning through a series of architectural competitions. The 2007 competition was titled '*Healthcare 2025: Buildings for the future*', and aimed to encourage architectural practices to address "*innovative and future-oriented thinking about building in the healthcare sector*". It should be noted that for this competition, which marked the 35th anniversary of NBHI, the brief went beyond issues of building design. In asking competitors to design the healthcare infrastructure for a hypothetical city of 160,000 inhabitants in the year 2025, the competition's parameters also covered areas such as urban planning, epidemiology, demographic studies, and social context.

The competition attracted a strong field of 46 entrants. It is fair to say that the standard of the entries varied quite widely, with some showing evidence of careful attention to the joint demands of high quality care and architecture, while others concentrated on one aspect to the detriment of the other. However, despite this level of variation, the competition jury noted a number of common themes, including:

> *... a strong belief in the technological progress as well as a strong belief in a socially involved future society ...* [but] *... the majority of the design teams do not have an overview of the broad scale of the healthcare sector.*

When reviewing the entries the organisers also noticed that many of the entries assumed that future healthcare services would be **decentralised**. Some of these entries envisaged a change in the current service model, such that the 'traditional' northern European conception of the family doctor (general practitioner) fulfilling a dual role as the first port of call for primary care, but also acting as gatekeeper to a range of specialist, hospital-based physicians, would be replaced by systems that place care and cure in the midst of everyday life. Other entries (e.g. 'Blue Heart', 'Big Bang') anticipated a fragmentation of service offerings, based largely on 'consumer', or patient, ability to pay.

To some extent the entrants took their cue from the competition brief, which set a scene in which specialised care would take place outside the confines of the hypothetical city, but it was evident that some architectural practices were responding to a perceived trend in planning healthcare services and infrastructure.

The competition organisers took the opportunity of this competition to ask a series of questions about the apparent convergence around the theme of decentralised services and a disaggregated healthcare estate. Firstly, what published evidence could architects draw on to support the view that decentralised health services would become the standard model by 2025? Secondly, do contemporary trends in design, procurement, or finance models indicate that decentralisation of acute hospital care is already underway, and if so, what lessons can be drawn? Thirdly, is it possible to identify the drivers and anti-drivers that encourage or inhibit decentralisation?

The European Health Property Network (EuHPN) was asked to address the above questions and to arrive at some initial conclusions. The method chosen to do this incorporated (1) a literature survey, (2) an examination of a number of case studies (mostly taken from the joint EuHPN/European Observatory drawn, and (3) reflection upon expert opinion provided by EuHPN members and associates. The outcome of this three-part analysis is presented in this report.

The rest of this report is structured in line with the above questions: a section describing the overall outcomes of the literature survey; a section which discusses a number of case studies of major capital investment projects *in terms of whether they show evidence of movement towards, or away from, decentralised services,* and a section that draws together evidence on the drivers and anti-drivers that influence health service decentralisation. The report ends with a section of conclusions and a bibliographic appendix.

## 1.3 Literature survey

As part of the brief for this report, EuHPN was asked to conduct a literature survey of published papers, books, and 'grey' literature relating to the concept of the decentralised hospitals and healthcare facilities. The aim was to assess what materials and evidence architectural practices could draw on when preparing their submissions for the *Healthcare 2025: Buildings for the future* competition. The survey was largely confined to English language journals and other publications because, while architecture is a field which enjoys a rich heritage of country-specific publications (e.g. *Byggekunst*, the Norwegian review of architecture; *Arkkitehti,* the Finnish architectural journal; *Baumeister: Zeitschrift für Architektur* from Germany, etc), most information of international interest is published in English.

The survey was conducted over a number of months, using combinations of the following search terms: 'decentralised', 'disaggregated', 'hospital', 'secondary care', 'health care', 'health facility', 'health service', 'health infrastructure', 'architecture', 'planning', 'reconfiguration', and 'polyclinic'. The search terms were applied to the academic databases available through Durham University, Google Scholar, and also to direct searches of a number of online journals. Alternate spellings (e.g. 'decentralised' and 'decentralized'; 'polyclinic' and 'policlinic') were employed throughout.

### *1.3.1 Results*

In general terms, the literature survey revealed a relative absence of academic material directly related to the key themes of this report. In other words, there is little available in the way of peer-reviewed evidence for architects to draw on when trying to meet the challenge of anticipating how infrastructure can best meet future healthcare needs, in the particular area of decentralised hospital and healthcare services.

One of the difficulties of conducting a survey of relevant literature concerning the 'decentralised hospital', or 'decentralised health facilities', is that the well developed fields of management, organisational and IT studies each contain large sub-groupings of academic texts concerning networks and decentralised systems as applied to the healthcare environment. Search outcomes are therefore biased towards these topics, and any relevant material concerning the planning of decentralised healthcare infrastructure is deeply buried. However, even allowing for this bias, it remains the case that this field is clearly under-developed.

#### *1.3.1.1 Some key texts*

Despite the general lack of well evidenced documents to support architects and planners who trying to evaluate the appropriate response of the built environment to future health care needs, there are *some* notable texts that address this area.

One such is *Building a 2020 Vision: our future healthcare environments* (Francis and Glanville 2001). This represents the outcome of a year-long study commissioned by the Nuffield Trust and the RIBA Future Studies Group, and carried out by MARU (London South Bank University's Medical Architecture Research Unit). This study aimed to forecast the future of healthcare infrastructure, in terms of design, responsiveness, and distribution, and concluded that four levels of health and social care would need to develop by 2020:

- home care
- health and social care centres
- community care centres
- specialist care centres.

This view was based on four drivers: rapid developments in IT and medical technology; evidence of an increasingly ageing population (coping with chronic illnesses); citizen empowerment (increased public expectation); and developments in procurement processes, performance measurement, and strategic asset planning tools. The high level message of the '2020' study is in three parts:

1. Remote monitoring will develop to the extent that much of diagnostic work currently carried out in the acute hospital environment will move into community settings. Some elements of rehabilitation and nursing care will also become more localised thanks to technological advances.
2. People will be able to use increasingly sophisticated and personalized information tools to access decision-support mechanisms, and to integrate their health care with other aspects of their lives.
3. IT and telecoms developments will further blur the boundaries between primary and secondary care.

The consequences for healthcare infrastructure were seen to be significant and far-reaching, with the identified drivers increasingly influencing decisions about how and where to spend the capital required to renew the healthcare estate. The '2020' document makes recommendations for each of the four levels of care identified above, some of which are as follows:

- *Support interdisciplinary teams working within a mix of dedicated and shared spaces* (Health and Social Care Centres)
- *Be landmark buildings with local character ... contribute both physically and socially to the regeneration of the local community* (Community Care Centres)

- *Incorporate masterplanning of sites in urban and rural contexts ... Align the clinical need for sophisticated, highly engineered spaces with a caring and supportive ambience for patients and staff.* (Specialist Care Centres)

With the exception of the 4th level – specialist care centres – the models of care outlined in levels 1, 2, and 3 fit remarkably well with many of the solutions proposed for the *Healthcare 2025: Buildings for the future* competition.

The literature survey showed that there has been much recent interest in the polyclinic as a means of redistributing services from the secondary to the primary sector, and enabling reconfiguration of healthcare infrastructure. The UK, for example, has seen the publication of *Healthcare for London: a framework for action* (Darzi 2007) and *High Quality Care For All* (Department of Health 2008). These documents clearly set out a programme with echoes of the '2020' study, and with many of the principles to be found in the *Healthcare 2025: Buildings for the future* entries. *Healthcare for London: a framework for action* (leaflet version), for example, states that:

> *"Medical advances mean that more care than ever before can be provided locally.*
>
> *Day surgery can be provided in local hospitals, outpatients can be seen in the community and people with long-term conditions like diabetes can be supported to stay at home."*

In discussing where care should be provided, Darzi proposes 6 levels of provision:
- Home
- Polyclinic
- Local hospital
- Elective centre
- Major acute hospital
- Specialist hospital

Although Francis and Glanville recommend 4 levels of care, and Darzi has opted for 6, the principle of centralising specialist services while attempting to wean the public off the hospital-centric model is a common thread.

The idea of the polyclinic as a foundation for decentralised healthcare services has raised an avalanche of debate in Anglophone journals (a search on "polyclinic" in just the British Medical Journal website immediately returns 92 matches[4]). The reason is to be found in positioning the second 'model of provision' – the polyclinic – between home care and the local hospital, leaving some GPs in doubt as to how the traditional, English primary care system will operate in future, and leading to concerns amongst doctors and patients that continuity of care will be sacrificed.

In the months following Darzi's reports on NHS reconfiguration there has been no shortage of criticism of the polyclinic model; much of it conducted in the pages of the British press (for example, The Guardian 23/03/08; The Times 12/06/08). However, this can be balanced by a more considered recognition – amongst GPs, practice nurses, and hospital clinicians – that something must be done to improve accessibility, quality, and

[4] http://www.bmj.com/cgi/search?fulltext=polyclinic, accessed on 15/12/08

value for money in the NHS. The nature of this debate is typified by the opposing views expressed by Dixon and Kay (2008) in the British Medical Journal. Neither author has issue with the main themes suggested by Darzi: *focus on individual need and choice; local where possible, centralise where necessary; joined-up care and partnership; prevention and health education; health inequalities and diversity*. However, Kay sees no value in supplanting the GP model with the polyclinic, and considerable disadvantage in the case of polyclinics based around existing hospital A&E departments. Dixon, on the other hand, considers that polyclinics may represent the 'missing link' that has troubled the NHS since its inception in 1948, and claims that "*it is hard to argue against polyclinics offering ... more integrated care and increased services, which are themselves more accessible and local to the patient.*"

Another reason for the relative abundance of literature on the polyclinic is that this model of care is well understood (if not always well embedded) in a number of European countries. The former Soviet Union, for example, had a large network of polyclinics acting as a first port of call for many patients, and managing entry to the secondary care sector, and despite subsequent attempts to replace this model with family doctors working in private practice, Russian polyclinics are still in operation (Ershova *et al*, 2007). Indeed, as Rechel and McKee (2008) have recently noted, the network of polyclinics that lay at the centre of healthcare delivery across much of central and eastern Europe has proved fairly resilient. Despite a reputation for offering poor quality care and for paying low salaries to staff, many countries of the former Soviet Union have continued to use this model, while others have opted to rename them as 'health centres' or 'diagnostic consultative centres'. Where World Bank and EU advice has been heeded, however, there has been an attempt to replace the Soviet polyclinic model with a primary care model that most closely resembles the arrangements in place in England. With that in mind, Rechel and McKee offer a pertinent question: "*How can it be that England is now introducing a model that countries in Central and Eastern Europe were so recently encouraged to give up?*"

#### *1.3.1.2 Architectural literature*

Architectural literature is often exploratory and imaginative; features that suit a profession concerned with aesthetics and design quality. However, it is rarer for authors in architectural journals to examine how best to connect their visions for the design and distribution of healthcare buildings to the evolving needs of healthcare systems, taking into the whole complex of issues around finance, quality of patient care, workforce needs, changing clinical culture, and the most effective use of capital investment.

Verderber (2003) recognises this 'disconnect':

> *"Research and critical discourse have been fragmented and have not provided the degree of support required by the architectural profession."*

and also notes that the lack of a well-grounded conceptual framework in health architecture is all the more curious, considering the expense of maintaining existing health service infrastructure, and the potentially enormous costs of failing to support future service models with appropriate, effective buildings. Verderber speculates on what future circumstances healthcare architecture will have to face, and concludes that (in developed nations, at least) some citizens will have access to powerful digital tools for sophisticated self-diagnosis and care; that healthcare organisations will be obliged to act in a more environmentally sustainable and sensitive fashion; that patient rights will

be a prime consideration; and that health architecture will be the link between architects, health and social care professionals, and empowered patients.

Verderber further predicts an increased need for adaptable and flexible healthcare facilities. Flexibility and adaptability are already prioritised in some projects across Europe (e.g. the new Martini Hospital at Groningen, Netherlands), and there is increasing demand for, and interest in, multi-use health centres (e.g. the community health centres currently being built in Northern Ireland, UK, which variously incorporate libraries, fitness clubs, citizens advice bureaus, and numerous other facilities for local populations). His final conclusions are that the era of the monolithic, large-scale hospital will have ended before 2050, thanks to major advances in medical and communications technology which will enable much more localised, responsive care systems.

As can be seen from many of the entries to *Healthcare 2025: Buildings for the future,* a number of health architects have responded to a perceived future need for more integrated health care (vertically, in the relationships between primary and secondary care, and horizontally, in terms of blurring some of the traditional distinctions between social care, promotion of well-being, and curative medicine) by proposing distributed *care networks*.

There is a body of architectural literature that links ideas of network development to changing notions of health and the human body (e.g. Emmons 2006), and it may be the case that architects respond to this kind of analysis by incorporating such concepts in their planning assumptions. Emmons points out that architects have long chosen to represent networks – within and between buildings – by using bubble diagrams, and cites works by Nobbs (1937) and Le Corbusier (notebooks) in evidence. Emmons finds frequent mention of "*the 'cells' of house and city as interconnected systems like the human body*" in Le Corbusier's journal 'L'Esprit Nouveau', including explicit reference to city transportation arrangements as networks. The bubble diagram is now part of every architect's toolbox, so it is perhaps no surprise that many of the entries to *Healthcare 2025: Buildings for the future* (e.g. 'Strip City 2025', 'Carefree 2025 Markerdam', 'Holon') used these to illustrate the functional relationships between different elements of the proposed healthcare service.

#### *1.3.1.3 Other approaches*

The literature survey found that the changing role of the hospital is better approached through a more generic investigation of journal articles concerning decentralisation and health system reconfiguration, an area of study which is itself part of a much larger body of political science research. Here, however, the emphasis is often on the managerial, administrative, organisational, or financial implications of shifting the locus of care between different health sectors, and the literature often fails to 'carry through' to discussion of consequences for the design (in the broadest sense) of the health estate. Arguments for and against decentralising public services have been discussed for a number of decades, and policy shifts have followed in successive waves. In 1990 the WHO published 'Health System Decentralization: Concepts, issues and country experience' (Eds. Mills, Vaughan, Smith and Tabibzadeh), a major, multinational study of health service decentralisation trends across a large cohort of developed and developing nations. Note that this authoritative, in-depth publication is concerned with chiefly with decentralisation of *health management*, and specifically excludes "... *what has been termed "territorial" decentralization, or the geographic dispersal of health*

*services themselves as opposed to their management*". Indeed, the various case studies presented deal with questions of who takes decisions, who is authorised to plan services, and who holds the reins of policy development. Discussion of the practical effects of decentralised management, in terms of the physical response of the health estate, is largely absent from the text, and there is very little indication of what tools might be available to link together more locally responsive administrations, planners, architects, clinicians, and patients, such that the infrastructure that supports health care can be made more effective.

The tendency to situate debate about health service decentralisation in the managerial and political arenas continues to this day, and dominates policy reviews and evaluations. One key example is the European Observatory on Health Systems and Policies' *Decentralization in health care* (Eds. Saltman, Bankauskaite, Vragbæk 2007). This covers a very broad range of issues, including analysis of the enormously varied economic, political, managerial, and clinical consequences of both decentralisation and recentralisation of European health systems. While much of this publication is again concerned with decentralisation in terms of devolving power to regional or local bodies, it is both noteworthy and welcome that it includes discussion of the consequences for clinical outcomes. One of the assumptions behind many of the entries for *Healthcare 2025: Buildings for the future* is that decentralised hospital (health) services must be better for patients, since care can be provided closer to home, in a more comfortable and pleasant environment; and that smaller units lead to better integration of health and social care services. In fact, *Decentralisation in health care* finds salutary evidence that the supposed clinical benefits are not as clear cut as the proponents of a decentralised health service often suggest. As the authors note, "*... available evidence relating decentralization and recentralization to improved health status, as indicated by process and outcome measures ... is sparse and inconclusive.*". They emphasise the 'multidimensional reality' of decentralisation on clinical processes and outcomes, and argue that there needs to be much more research into the effects on implementation of health programmes and effective allocation of resources. Importantly, they also introduce an important distinction: "*The impact on individual care services may be different from the impact on population health.*".

Sibbald, McDonald, and Roland (2007) conducted a review of published research on shifts of specialist services from acute hospitals to community settings, and found that, when this transfer was specifically a shift from hospital to primary care (as opposed to joint working, or relocation of specialists), there is sometimes a risk of providing a poorer service to the patient. Furthermore, in these circumstances: "*Savings in cost were offset by increases in overall service volume and loss of economies of scale.*". This study gives a very full account of the effects of different kinds of intervention on access, quality, costs, and implementation.

## 1.4 Lessons from case study exemplars: drivers and anti-drivers

The European Health Property Network, in collaboration with the European Observatory on Health Systems and Policies, is completing in 2009 a major study of capital healthcare investments across Europe. A number of the case studies in this study demonstrate certain principles that are of direct relevance to this report. These have been summarised below, along with information on the North Tees (UK) *Momentum: pathways to healthcare* programme. These case studies represent the kind of real world

information that architects and planners can use to understand whether visions of decentralised health facilities are possible.

This section lists the key characteristics of each case study, as well as an indication of what lessons each can offer in terms of decentralisation drivers and anti-drivers. However, before discussion of the case studies, we introduce consideration of an important barrier to implementing decentralised healthcare services: the hospital as icon.

### *1.4.1 The hospital as icon*

In considering when, why, and how decisions are made on where best to locate the provision of healthcare, one issue repeatedly comes to the fore: the status of the hospital as an iconic representation of how the state values its citizens.

The term 'iconic' is used continually in discussions and promotions about hospital development. All new hospitals tend to be described as having iconic standing in their communities; for example, Dr Antonio Penna, the Chief Executive of The Children's Hospital at Westmead, Australia, said, "*The iconic status of The Children's Hospital at Westmead and Sydney West Area Health Service's pivotal role in providing world's best public health services to the population hub of Sydney are strongly recognized by NSW Health … Australia's rural hospitals face most of the same issues and challenges faced by metropolitan hospitals. However they also face additional challenges around geographic isolation, their iconic status and role as major employers in local communities, and their close relationship with community based health services*". Furthermore, the term iconic emerges again and again when discussions focus on changing the nature and basis of healthcare delivery: "*UK Government reforms are threatening the future of district general hospitals … Given the iconic status of hospitals in the eyes of the public, government risks huge unpopularity in dealing with the consequences*" (Ham 2003).

To some extent, hospitals have come to be the physical manifestation of the value a government places on healthcare investment on behalf of its citizens. Few can begin to understand the nature of the work undertaken in these institutions, whether they offer value and quality, or indeed if they are still the appropriate kind of infrastructure. This is in some respects the crux of the problem of the iconic status of hospitals. They served governments well during the technological explosion of recent decades – hospitals became depositaries of the new wonder treatments – and whilst this growth was affordable the status quo obtained. Indeed it was encouraged. Typical is the UK; in 1962, Enoch Powell, then minister of health, published the *Hospital Plan for England and Wales*. The plan served as a framework for the development of hospital services in the decades that followed, leading to the building of many new hospitals and the refurbishment of others. At the heart of this framework was the district general hospital, designed to provide a comprehensive range of inpatient and outpatient services to populations of 100,000 to 150,000. District general hospitals have formed the backbone of NHS hospital care ever since.

This has been repeated almost universally throughout Europe, so it is little wonder that after nearly half a decade of conditioning, hospitals are the centre piece of healthcare systems. Citizens find it difficult to contemplate alternative models, particularly when, as can be seen above, even the new generation of CEO's plays on the iconic status of the hospital to defend their position in times of change or to argue for a larger slice of

the resource cake. If decentralization of services is merited, and disaggregation of secondary healthcare infrastructure is a consequence of this, then overcoming the iconic pull of the hospital is perhaps the biggest challenge for policy makers, planners, architects, managers, and, eventually, clinicians.

*1.4.2 Momentum: pathways to healthcare (UK)*

The *Momentum: pathways to healthcare* programme is based in North Tees, UK, an area of north east England with a population of around 300,000 people living mostly in small to medium-sized conurbations. North Tees has a legacy of poor population health, but an existing NHS health service that performs well according to national benchmarks. Local health service managers are convinced that the traditional boundaries between acute care, primary and social care, and public health, have to be overcome in order to provide high quality care into the future, and that the route to do this is via redistribution of some services from the secondary sector into local, community settings. The *Momentum* project relies heavily on integrated care pathways as the means to reconfigure the service model and the health estate.

*Is there evidence of decentralised services or infrastructure?*

**Yes.** Although *Momentum* is still at the planning stage, the project has ambitious plans to provide a number of services in a community setting, via extended and upgraded GP practices, enhanced outreach services, and a number of polyclinic-type health centres.

*Which factors promote decentralisation?*

- Realisation that the existing service model cannot respond to future demand
- Not enough existing community facilities for discharge from the acute hospitals
- Too many patients with chronic illness in hospital beds
- Too much pressure on existing A&E departments
- Poor integration between primary and secondary care

*What are the barriers to decentralisation?*

- Some clinicians are unwilling to change working practices
- Need to re-train some of the workforce
- Some doubts over affordability, and the financial model available to fund capital investment

*1.4.3 Tuscany (Italy)*

Tuscany (pop. 3.6 million) has undertaken a major reform of its health service since the late 1990's, in response to the national government's decision to devolve fiscal and administrative responsibility for healthcare to the Italian regions. Planners conducted a number of major reviews of patient, public, and clinician opinion about how best to reform the health service. The conclusions were that the previous administrative structures were ineffective; that the region had too many small, inefficient hospitals; that primary / community care did not have a high enough profile; and that quality of care overall was not good enough. The regional administration has responded by rationalizing local health administration, reconfiguring the health estate by providing fewer hospitals but more primary and intermediate care provision, and retraining the workforce to accept team-based working in different settings.

*Is there evidence of decentralised services or infrastructure?*

**Some.** Primary care has a new impetus. Some hospitals operate 'part-time', with recovery and rehabilitation taking place in other settings. There has been

experimentation with GP-led community hospitals, which specialise in elderly patients with chronic illness.

*Which factors promote decentralisation?*
- Increasing demand for services
- Not enough community places for rehabilitation and step-down care
- Too many patients with chronic illness in hospital beds
- Too much self-referral of patients to A&E departments
- Poor integration of primary and secondary care

*What are the barriers to decentralisation?*
- Public expectation that the hospital is the best place to be treated
- Possibility that reforms will be reversed by a future regional government with different policies
- The 'community hospital' model has not been a big success; it has proved difficult to persuade municipalities to back this

### *1.4.4 Karolinska (Sweden)*

Stockholm County Council (pop. coverage 2 million) is in the middle of a very large capital investment programme, which has two aims: (1) to rationalise the number of specialist, acute centres in the region, so as to maintain the status of the teaching hospital and to attract high calibre staff, and (2) to devolve some secondary care to local, community settings. The health authorities are relying on advances in IT and communications technology to enable devolved work up and rehabilitation support in local settings.

*Is there evidence of decentralised services or infrastructure?*
**Some.** Stockholm County Council has clear objectives to reshape services, to improve accessibility through modern ICT infrastructure, and to use integrated care pathways to make healthcare more effective and efficient. The objective is to provide care as close to the patient's home as possible. At the time of writing much of the programme is still at pilot stage.

*Which factors promote decentralisation?*
- Belief that population health will be improved by having services closer to the communities they serve
- Increasing complexity of care packages, especially for children and the elderly
- Availability of advanced IT and communications technology

*What are the barriers to decentralisation?*
- Professional resistance – some hospitals will lose specialist status as some services are centralised
- Recent re-evaluation of the funding model for the necessary capital asset investments (is it affordable?)

### *1.4.5 Northern Ireland (UK)*

Healthcare in Northern Ireland (pop. 1.7 million) is administered by the Province's Department of Health, Social Security and Public Safety (DHSSPSNI). After many years of under-investment, the region was given a large budget for capital investment in health infrastructure, and is now approximately 2/3$^{rd}$ of the way through a 10-year programme of health service reconfiguration. The DHSSPSNI consulted widely before

starting on this programme, and concluded that issues of patient safety and increasing demand were paramount in deciding the future shape of healthcare. The DHPSSNI model is based on care being patient centred, clinically driven, and responsive to local needs. This has resulted in a 5-tier system of GP practices, local health centres, community health centres, acute (secondary) care hospitals, and regional (tertiary) hospitals, each designed to service a certain level of population.

*Is there evidence of decentralised services or infrastructure?*
**Yes.** Northern Ireland has implemented a model of health care with an emphasis on preventing patients from escalating to 'higher' levels wherever possible. There is now more capacity to deal with patients in intermediate levels between primary and secondary care – e.g. 'step up / step down' beds in community health centres.

*Which factors promote decentralisation?*
- Increasing demand for services
- Not enough facilities for discharge and rehabilitation
- Too many patients with chronic illness in hospital beds
- Too much A&E activity
- Poor integration of primary and secondary care
- Capital investment focused on the acute sector
- Long waiting lists for referral from GP to hospital
- The enabling effects of new technologies

*What are the barriers to decentralisation?*
- Some clinicians are opposed to the changes, in some cases because of changes in working practice
- Some members of the public object to losing local hospitals (even though they may be gaining a better equipped community health centre)

### 1.4.6 *The Alzira Project, Valencia (Spain)*

The Alzira Project was the response of the regional government of Valencia to a political need: to provide the citizens of one part of the city (pop. 245,000) with a full service acute hospital. The solution was innovative – to issue a public call for proposals to construct, maintain, and staff the new hospital (Hospital de la Ribera), funded through capitation fee payments. The regional government wanted to retain control over health targets and outcomes, while transferring the responsibility (and risk) for the estate and the management of clinical services. At the outset there was no intention to address issues of decentralisation of healthcare.

*Is there evidence of decentralised services or infrastructure?*
**Some.** Although decentralisation was not part of the original brief, the administration of La Ribera found, part way through the first concession period, that the finances were not viable unless they also had control of primary care services. As a result of this re-negotiation, new primary care centres have been built, and some consultant grade staff now offer outpatient services in these locations. Some diagnostic and imaging services have also moved outside the hospital.

*Which factors promote decentralisation?*
- Cost control. The Alzira administration found it difficult to manage the peaks and troughs of demand without some control of referrals from primary care.

*What are the barriers to decentralisation?*

- Care pathways are in use within the hospital, but are not yet developed to span across primary and secondary care.
- There would be a high cost associated with the infrastructure development needed to decentralise services further: the capitation fee funding model does not accommodate this at present.

### 1.4.7 *OrbisConcern, Sittard (Netherlands)*

OrbisConcern is the not-for-profit trust that manages the Maasland Hospital in Sittard, Netherlands, serving a population of around 200,000 people. Some years ago OrbisConcern took the decision to rebuild their hospital, and in light of the changing health funding system in the Netherlands (now encompassing variable DRG rates) and competition from other hospitals in the area, management decided to redevelop the organisation as a core hospital plus medical park. Some of the functions previously carried out in-house (elements of patient rehabilitation and intermediate care, diagnostic testing, laundry services, etc) are now part of separate 'businesses'. The whole project has been driven by very strong commitment to systematisation of services, care pathway use, and IT development, and these themes carried through to the brief extended to architects and financial planners.

*Is there evidence of decentralised services or infrastructure?*

**Minimal.** Although some functions have moved outside the walls of the hospital, they are still sited close by. There has been some movement towards greater integration of primary and secondary care, in that local family doctors are encouraged to use software and telecoms technology to access directly certain elements of the hospital patient record, test results, and so on. However, the primary care practitioners are still firmly in place as gatekeepers to secondary care.

*Which factors promote decentralisation?*

- A new funding model for secondary, acute care has prompted the hospital's administration to think beyond the traditional boundaries
- Too many patients with chronic illness occupying hospital beds
- A local lack of intermediate care facilities
- Strong belief in systematisation of work processes, eventually to include links to primary care
- Supporting IT and telecoms infrastructure

*What are the barriers to decentralisation?*

- Traditional boundaries between the hospital sector and family doctors
- Competition between the Maasland hospital and other hospitals in the region (i.e. the Maasland must retain enough functions to remain attractive to the Dutch insurance funds)

### 1.4.8 *Coxa Hospital (Finland)*

The Coxa Hospital in Finland (pop. coverage 210,000) is run by a public-private consortium of clinicians, the local municipality, central state representatives, and a financing institution. The hospital concentrates exclusively on joint replacement surgery, and aims for the highest standards of patient outcomes and staff satisfaction.

*Which factors promote decentralisation?*

- Highly systematised clinical pathways, which emphasise remote work-up and diagnosis, top quality treatment in the hospital itself, and rehabilitation (wherever possible) in a local hospital close to the patient's home.
- Buildings designed to accommodate use of integrated care pathways
- IT infrastructure

*What are the barriers to decentralisation?*

- The Coxa Hospital is a 'stand-alone' institution, specialising in just one type of surgery. It is therefore limited in the degree to which it can integrate with the wider healthcare system
- Some opposition from other hospitals in southern Finland, which have seen highly qualified specialists migrate to the Coxa

### *1.4.9 St. Olav's Hospital, Trondheim (Norway)*

St. Olav's is a university teaching hospital that serves a population of around 175,000 people. It has been rebuilt in two phases, with the twin aims of providing improved secondary and tertiary care to the region's population, and achieving greater integration of research and teaching functions with Trondheim's University. The capital investment for this project was provided by the Norwegian State.

*Which factors promote decentralisation?*

- Norway's ageing population, and increasing incidence of chronic illness, is putting pressure on the health service to find new solutions to replace their existing model.
- Patient outcomes are not thought to be good enough in all cases; particularly in pediatric and geriatric care.
- Costs of hospital care are rapidly rising

*What are the barriers to decentralisation?*

- The central state pays for secondary and tertiary treatment. Primary care, however, is the responsibility of Norway's municipalities. There is therefore a financial conflict which stands in the way of integrated care and cure.
- St Olav's is a highly regarded, iconic institution. It is not easy to persuade the public that some treatment would be better provided in other settings.

### *1.4.10 Case Studies – Discussion*

On the whole, the case studies do not illustrate a match between decentralised structures and systems on the one hand, and corresponding capital asset portfolios on the other. There are many reasons for this state of affairs, most of which reflect the history and traditions of each country's health system.

In the case of the re-building of St Olav's hospital in Trondheim (Norway), for example, the lack of 'connect' between the built solution (a state-of-the-art university hospital) and current thinking about future population health need in the region (centred on chronic illness and care of the elderly), is largely the result of having two parallel commissioning and procurement systems in place. Hospitals in Norway are the responsibility of regional authorities, which act as an arm of national government, while community health facilities are provided by the (many) local municipalities. If a patient is discharged from hospital to complete recovery in a community setting, the hospital

loses income and the municipality incurs a cost – and there is currently no mechanism in place to re-balance this[5].

In a similar vein, the decision by the health authorities in Valencia to outsource the provision of acute hospital services in one of the city's suburbs, via a capitation fee system, resulted in the new-build Hospital de la Ribera. The hospital's buildings are quite serviceable, but they do not incorporate much in the way of innovative design, they assume that patients will travel to the hospital site, and they reflect a service model that was in place 10 to 15 years ago. This is not to say that procuring the hospital through, for instance, a purely public capital route would have resulted in a different architectural or urban planning solution. However, it does illustrate an important point: without a mechanism to explicitly link understanding of future health need, decisions thereafter about where best to site services, and the available workforce profile, planners and architects are likely to be forced to design around the status quo, and to reflect embedded interests. This realisation (or something similar to it) came to the Valencia authorities some years into the original concession period, when the hospital board recognised the difficulties of managing peaks and troughs of demand, and re-negotiated their contract on the basis of providing both primary and acute health services. This resulted in improvements to the primary care estate and some relocation of secondary care services to community health centres.

Given the powerful drivers and anti-drivers that influence decisions to centralise or decentralise, aggregate or disaggregate, it is vital that all those actors involved in planning the future direction of a healthcare system have access to a common language. It is suggested that integrated, whole systems care pathways provide that medium of exchange, and the case studies provide some examples of partial success. Northern Ireland in the UK, for example, is in the midst of a major reconfiguration of primary, secondary and tertiary healthcare which also encompasses aspects of social care and public health. Here we can see drivers operating in both directions: centralisation of complex, specialised services in a smaller number of hospitals; decentralisation – to community health centres – of many features of healthcare that were once provided exclusively in the acute sector. In addition, Northern Ireland's emerging network of health centres is designed to encompass facilities for social services, leisure activities, and the promotion of well-being. The underlying driver towards this model has been the availability of capital to renew the province's neglected health and social care infrastructure, coupled with the decision-making abilities of a department (DHSSPSNI) that, unusually for the UK, spans health, social services, and public safety. The need to plan for capital asset investment on such a large scale (around GBP 5 billion over 10 years) prompted the DHSSPSNI to examine carefully clinical advice concerning the future locations of health and social care provision, and to take into account emerging evidence of the likely enabling effects of advances in medical technology and information technology. Thus far, the outcome for the built environment is generally regarded as positive. Northern Ireland's community health facilities are built to a high standard of design, and some have won prestigious architectural awards. It is less certain, however, if the notion of care pathway-based linkage between service model and capital asset base has materialised. Not all new buildings are being used to capacity, and there is some evidence that planners have not yet fully convinced clinicians of the validity of the new healthcare landscape.

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[5] Although note that the Norwegian government is undertaking a review of the balance between primary and secondary care, and will report on possible changes to healthcare infrastructure funding mechanisms in 2009.

In similar vein, there is still some resistance to the disengagement of services from acute hospitals and their relocation in peripheral units within the health service reconfiguration that has been taking place in Tuscany since the late 1990s. Although Tuscany differs markedly from Northern Ireland in terms of geography, climate, and traditions of health service provision, the factors underlying the urgent need to effect service reform, change clinical culture, and renew health infrastructure are similar in both regions. Tuscany has seen a significant reduction in the number of small, outdated, local hospitals, with complex services relocated to specialist hubs. Many hospitals and clinics have been re-built or extensively renovated, and on the whole the public have come to accept that safety and quality are better served through a greater concentration of expertise. Clinicians and other healthcare professionals have been trained in care pathway use, and secondary care centres are now mainly organised around themes rather than clinical specialities. Nonetheless, it remains that case that care pathway development has been largely within the acute hospital environment only, and that attempts to relocate some services (such as rehabilitation of elderly patients) to GP-led polyclinics have been fitful and slow to mature.

*1.4.10.1 Care pathways*

A number of the case studies demonstrate the importance of using integrated care pathways to tie together care models, asset planning, and infrastructure design, although in most cases this has been a partial success – usually because of embedded professional boundaries or payment mechanisms.

One of the case studies, however, does present evidence of serious penetration of care pathway principles. The Coxa Hospital (Finland) is devoted to joint replacement surgery, and emerged from a clinician-led desire – supported by the local municipality – to radically improve the quality of service provided to patients. The Coxa achieved pre-commitment from clinicians before starting its redevelopment plan – including whole systems organisation of work, and internal workplace systemisation of patient care and flow management. The hospital architects were given care pathway modalities as one of their key briefing guidelines. Coxa was therefore a new 'bottom-up' design, based on the core product – clinical service delivery. The Coxa's buildings have been designed to fit a particular model of care, such that patients 'check in' for surgery on the day of their operation, are attended to in an environment which sees high levels of investment in the latest technology and workforce training, and are subsequently discharged after the minimum safe period to recover and recuperate in local general hospitals. The Coxa hospital's success in establishing care pathways at the core of investment decisions and improvements in patient outcomes lies in being clinician-led and in having the freedom to finance, procure and operate their hospital free of external government (municipal, region or state) control. Resource decisions are thus transparent - clinicians and the workforce can therefore see and own the link between debt (generated to invest in capital) and service delivery (to repay that debt). Clinicians at Coxa identified the risk of failure (bankruptcy of the hospital) as an important motivational factor in persuading them to accept the relative discipline of work systemisation and service redesign which enabled more care to be delivered in the peripheral settings and ensured a lower overall cost, higher quality and therefore more sustainable hospital. Ultimately corporate interest transcended personal interest at the Coxa.

In discussion of the Coxa hospital it should be acknowledged that there are important issues of complexity to consider. Whereas Coxa is a simple mono-function unit (joint replacement) most progress in meaningful devolution of services will need to apply to

general and tertiary hospitals, where the change management task is immense. The new OrbisConcern Maasland hospital in Sittard (Netherlands), for example, has also embraced systematization of work processes and introduced care pathways for around 80% of its case mix. Like the Coxa, the management of the Maasland hospital used care pathway data to brief their architects and designers, and has moved to concentrate on its core services, with certain aspects of care being externalized to a surrounding medical park. However, OrbisConcern, the owners and managers of the Maasland hospital, have had to expend considerable time and resource on convincing staff that this approach is sustainable, and have had to find ways to encourage stronger links with the primary care sector.

If OrbisConcern is an example of a stand-alone, not-for-profit healthcare organization that has already used care pathway principles to inform capital investment and infrastructure design decisions, then the *Momentum: pathways to healthcare* project in North Tees, UK, is an example of a public sector consortium that is seeking to do the same on a sub-regional basis. North Tees comprises a number of urban centres which have an industrial legacy of a population that suffers from poor health outcomes when compared with other parts of the country. As outlined *Better Health, Fairer Health* (North East NHS 2008), the north east region's vision for 21st century healthcare, North Tees performs well in terms of meeting national healthcare targets, but still has a disproportionately large number of citizens with long-term conditions and chronic illness. In a nutshell: the healthcare organizations of the north east in general, and North Tees in particular, are good at treating sick people, but too many of the region's inhabitants suffer from unnecessary and preventable ill health. Senior clinicians and public health officials, managers and planners, are agreed that the aims contained in the regional strategy for better health are unlikely to be met by simply 'doing the same thing, but harder'. To a certain extent, the consensus is that the law of diminishing returns is coming into play – the existing system has already been pressed very hard to meet efficiency targets, and while further investment could yet see further improvements, it is doubtful if this represents value for money. Instead, the leaders of the local health economy, which comprises a university hospital Foundation Trust and two Primary Care Trusts, have agreed to cooperate on a project to reconfigure:

- the service model used for healthcare provision
- the health estate (primary and secondary care)
- the profile of the workforce
- public expectations

The desired outcome is familiar from preceding discussion of Northern Ireland and Tuscany: a new hospital, on a new site, to replace two medium-sized, outdated facilities and to concentrate expertise and resources in one place; expanded community health facilities (GP practices, integrated care centres and walk-in clinics) to deliver care closer to patients; a greatly increased budget for health promotion and well-being initiatives. In theory, the whole package is underpinned by lengthy and detailed work on care pathway re-design and supported by the NHS's extensive IT programme. The *Momentum: pathways to healthcare* website[6] is a useful repository of information on the work already carried out - particularly the pages on Service Development & Design – as well as the likely trajectory of development in the coming months and years.

[6] See www.momentum-consultation.org.uk

At the time of writing, the *Momentum* project is still largely aspirational in terms of creating a devolved built environment. A number of primary care premises have been expanded, while others are being constructed, and these are able to offer some services (for example, musculo-skeletal referrals, dermatology) that were previously provided in the two hospitals. The new hospital, however, is at the outline business case stage, and negotiations over capital funding are on-going. It is by no means clear whether the vision of extensive decentralization of secondary care will come into being, since managers and clinicians have still to reach agreement on which services will be provided where, and by whom, and there is proper caution over the continued viability of the Foundation Trust hospital if too much of its activity transfers to other agencies.

## 1.5 Conclusions

In the context of the *Healthcare 2025: Buildings of the future* competition, the questions that this report set out to answer were:

1. What published evidence can architects draw on to support the view that decentralised health services will become the standard model by 2025?
2. Do contemporary trends in design, procurement, or finance models indicate that decentralisation of acute hospitals is already underway and, if so, what lessons can be drawn?
3. Is it possible to identify the drivers and anti-drivers that encourage or inhibit decentralisation?

This section looks at each of the above questions in turn, and ends with a reflection on a future direction for research.

### *1.5.1 Published evidence*

The literature survey concluded that, while there are some key documents that support a move to decentralised healthcare services (and decentralised infrastructure), these are in short supply. Much of the available literature is concerned with a limited range of factors that may encourage or inhibit decentralisation: clinical training, GP status, or continuity of care, for example. There are few documents that attempt to address the full complexity of issues, including finance and procurement models, urban planning and building design, clinical opinion, public expectations of the health service, and the availability of suitable strategic asset planning tools. One very notable gap in the literature concerns the consequences for education and training of the healthcare workforce, to meet the challenges of a decentralised healthcare system.

The architectural literature naturally centres on aesthetics and design issues, although from time to time it does also address the environmental impact of centralised versus decentralised services.

Healthcare architects therefore have a limited range of authoritative, published materials to use, when trying to respond to proposed changes in the distribution of health services and health facilities. The entrants to *Healthcare 2025: Buildings of the future* are to be commended for their efforts in responding to the competition brief, but it is likely that they had to rely on hints from competition's own documentation and the prevailing opinions of policy makers and senior healthcare planners, rather than hard data.

To some extent this state of affairs reflects the fact that there are as yet few concrete examples of fully decentralised healthcare, at local, regional, or national level. As some of the case study projects come to maturity, it may be that the literature will grow to reflect their successes or failures.

### *1.5.2 Trends in design, procurement, finance*

The messages here are mainly drawn from the case studies.

There is certainly some evidence that health authorities and hospital administrations are beginning to look at decentralised services in a serious way. The *Momentum: pathways to healthcare* team, for example, which comprises representatives from the acute trust, local primary care organisations, and the local authorities, has made every effort to enable the relocation of as many hospital services as possible to community settings. The procurement route will be chosen to reflect this ambition, and the hospital management has taken the unusual step (for the UK, at least) of requesting public capital financing, rather than PFI, in order to keep open the possibility of innovative building designs.

In Northern Ireland, the DHSSPSNI has emphasised high quality design for its new local and community health centres, in order to 'sell' the concept of decentralised services to the public and clinicians, and the procurement route (PFI, but with limitations) is designed to deliver value for the community rather than excess profits for shareholders. The Coxa and Sittard hospitals are examples of healthcare organisations that have built systematisation of care – particularly with regard to management of chronic illness – into all aspects of their operations, including choice of IT systems and architectural briefs. The outcome has been a recognition that some aspects of the hospital's traditional role should be relocated to other settings, and that should be greater provision for intermediate care.

These examples are encouraging, and might suggest that decentralised care is just around the corner. However, other case studies indicate that there are still many barriers to overcome. The redevelopment of St. Olav's Hospital (Trondheim), for example, shows that the nature of health financing can have a major impact on the ability of a health system to reinvent itself. Although the majority of planners and policy makers in Trondheim believe that at least some degree of decentralised care would benefit patients and staff, it has so far proved difficult to put this into practice. And again, while the Alzira project has been successful in delivering a new hospital to a local community, there is little evidence of innovation in design and most of the hospital's 'traditional' services are still located within its walls.

Overall, we conclude that the decentralisation of hospital services is underway, but in a patchy, piecemeal fashion, and as yet without much common understanding of enabling factors.

### *1.5.3 Drivers and anti-drivers*

A scan of the literature and the case study examples reveals some clear indications of those factors that encourage or inhibit decentralisation.

Most clinicians and health services managers, in most countries, believe that the costs of current health service models are too high, and will continue to increase, largely because of demographic changes in the population, epidemiological factors, and the

growing costs of complex medical interventions. They conclude that unless we are willing to increase our contribution of GDP towards healthcare budgets, the only option is to look for an alternative model of service provision; one that encourages early intervention, self-management of chronic illness, and short stays in acute hospital environments. This model is likely to include greater use of community health centres for diagnosis and follow-up treatment, as well as for health advice and well-being programmes. Emerging IT and telecoms solutions will be an important factor in allowing such movement of service provision to different settings.

The case studies demonstrate some common drivers towards decentralisation. These include:

- Likely failure to meet future demand for hospital services, with the existing model
- Too many patients with chronic illness occupying hospital beds instead of intermediate care places
- Pressure on urgent care and A&E departments
- Poor patient outcomes, resulting from inadequate handovers between primary and secondary care
- Particular concern over service provision for children and the elderly; those who are most likely to benefit from decentralised services, closer to home
- Long waiting lists for referral into secondary care
- Lack of cost control across the whole health system
- Quality improvements through use of whole systems, integrated care pathways

Despite the above indications, which might encourage healthcare architects to design for decentralised hospitals, it is clear that many barriers remain. These are often embedded in the very institutions that need to change, and in the professional structures that occupy those institutions. The literature survey and case studies revealed the following:

- Hospitals are iconic institutions, and therefore any change to their status may be seen as an attack on the whole health system
- Clinicians may be unwilling to accept changes to their working practices, for reasons of status or funding
- Professional boundaries are often jealously guarded
- There is a large cost associated with changing workforce education and training, to accommodate team-based, decentralised services
- Many people are convinced that hospital treatment is the 'gold standard'
- Disinvestment is politically unwelcome
- There is some disagreement as to the clinical value of offering some services in a community setting
- Hospitals often feel that they have to compete for patients, and are therefore unwilling to dilute their service offering
- Capital asset funding models may stand in the way of decentralisation. This may be true of insurance-based systems as well as PFI schemes

The above summary of drivers and anti-drivers gives some idea of the issues faced by healthcare architects and planners when trying to anticipate the kind of infrastructure that will support a health service in years to come. At present there is a clear direction of travel towards decentralisation of some hospital services, although there is also evidence of a tendency to centralise highly complex medical and surgical procedures in a smaller number of specialist centres. It was not unreasonable for the entrants to Healthcare 2025: Buildings for the future to reflect this view, but it is doubtful if they

could rely on good quality evidence in support of their designs. The evaluation and analysis of emerging examples of decentralised services and facilities should therefore be a priority for future research.

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# 3 Verantwoording

Naam en adres van de opdrachtgever:
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Namen van instellingen waaraan een deel van het onderzoek is uitbesteed:
European Health Property Network

Datum waarop, of tijdsbestek waarin, het onderzoek heeft plaatsgehad:
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