

Could architectural planning enable hospitals to 'build in' the organic space needed to answer capacity challenges and enhance the performance of the healthcare estate?

The winter of 2017-18 was acknowledged as being difficult for healthcare providers; virulent influenza outbreaks lead to increased hospitalisation rates throughout the flu season in Europe, the USA and Australia. The knock-on effects of seasonal pressures like this are a contributing factor to a worldwide challenge: that of insufficient capacity within healthcare estates.

Beds filled with patients suffering from influenza means fewer beds and staff available to care for patients recovering from surgery, which means fewer surgeries can be performed. This causes bottlenecks in patient waiting lists, leading to longer waits for surgery, which directly impacts on patient outcomes. Alongside seasonal pressures, the worldwide population continues to grow, funding in many European countries is stretched and physical space in population centres is increasingly difficult to find. How can architects and design teams address the need for additional capacity to deal with peaks in demand, without the need for large capital outlay and more space-consuming, permanent infrastructure?

How is capacity influencing design?

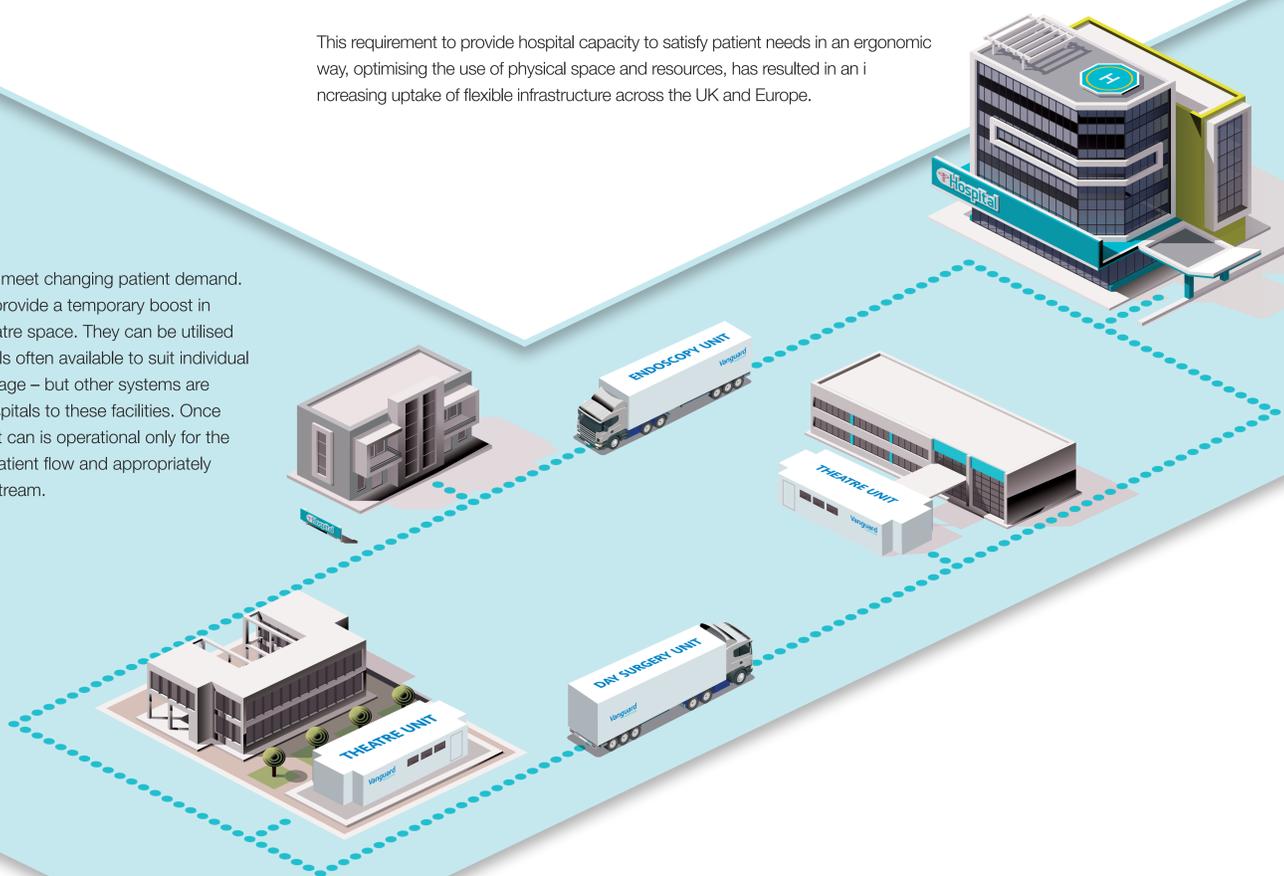
Capacity planning during the design phase of new build hospitals has historically been driven by a 'bed numbers' approach in much of Europe. Working from a ratio of beds per population against matrices analysing bed occupancy levels and durations, this approach is increasingly failing to take into account changes in care provision – for example, more surgeries are becoming day cases as technology advances – and service volumes and provision, which change as worldwide population demographics are changing.

More recently, architects and planners are taking a patient-focussed approach to the design of hospitals. These designs, centring as they do on care pathways and patient flow as opposed to bed numbers, often include lean thinking principles applied in other industries. This approach, whittling down 'wasted' space and resources and improving efficiency within the hospital pathways, has proven so far to be a successful design premise for hospitals in Germany, Finland and the Netherlands.

This requirement to provide hospital capacity to satisfy patient needs in an ergonomic way, optimising the use of physical space and resources, has resulted in an increasing uptake of flexible infrastructure across the UK and Europe.

Can flexible infrastructure help hospitals?

Procuring flexible infrastructure involves the utilisation of impermanent facilities to meet changing patient demand. These facilities, either modular or mobile, can be brought onto hospitals sites to provide a temporary boost in capacity for anything from diagnostic capability or bed numbers to operating theatre space. They can be utilised for periods as short as a single week to several years, with flexible financial models often available to suit individual hospital requirements. Utilities connections are required – power, water and drainage – but other systems are integral, which reduces the need for complex development works to connect hospitals to these facilities. Once commissioned, flexible infrastructure offers a high-quality clinical environment that can be operational only for the time it is needed, integrating with the hospital's existing pathways to streamline patient flow and appropriately manage demand to prevent costly backlogs through maintaining a key revenue stream.



How does flexispace improve efficiency?

When planning new hospital sites, consideration should be made to the benefits of flexible infrastructure in conjunction with lean thinking principles. Incorporating 'flexispace' within hospital designs means that mobile facilities can be brought onto site quickly and installed with maximum efficiency, reducing wasted time and the cost and environmental impact of developing new permanent infrastructure that is only used during periods of high demand and sits empty at other times. This organic space, which requires only access to primary utilities, can then be utilised for a range of temporary facilities such as scanning units, wards or operating theatres. This gives hospitals the freedom to supplement capacity in targeted areas to meet demand as it changes, increasing their responsiveness and efficiency. This supports healthcare providers in meeting not only patient satisfaction targets through increased access to services during periods of high demand, but also enables them to meet key performance indicators in activity volumes and revenue flow that could only otherwise be met through substantial investment programmes.