

When faced with the challenge of replacing an ageing hospital, authorities in Norway took the novel approach of heavily involving its patients, as Sharon Cannaby discovered.

# a patiently developed hospital

■ **How would you go about building a new hospital? This was the question facing hospital authorities in Trondheim, Norway in the 1990s.**

## ideas competition

Their existing hospital was out of date and no longer fit for purpose. But what should be built in its place? To answer this question the hospital's authorities proposed an 'ideas competition' where architects were invited to submit plans for a new hospital which was to be designed from the patient perspective and would function as:

- a regional hospital for 650,000 people in the region
- a local hospital (providing services for 200,000 people in the local catchment area)
- a university hospital.

The winning design was based on a city block plan with a very clean, very modern and very fresh look. The new hospital is basically a suburb of medical buildings surrounded by support centres but, through the use of natural building materials, the incorporation of glass bridges and the addition of a central tree-lined plaza, the total effect is one of calmness and serenity.

The completed St Olav's hospital will have seven separate buildings providing medical services (women and children's centre, neuro centre, gastro centre, heart-lung centre with emergency wing, mobility centre, knowledge centre and laboratory centre) plus a supplies

centre, an office block and – to facilitate the discharge process – a 'step down' facility linked to the main build but run by social care. A psychiatric centre may be added sometime in the future.

The layout of each medical block follows the same pattern, with service areas in the basement, outpatient clinics and reception on the ground floor, operating theatres on the second floor, university on the third floor and wards on the top floors. (The university is an integral part of the build; with over 1,300 students and only 800 standard beds St Olav's actually has more students than patients.)

It was decided to build the new hospital alongside the old so that demolition and construction take place side by side. The effect of this decision was to make the new build a rather long and drawn-out process; the build started in the late 1990s but won't be finished until 2013 – although the old hospital should be closed by 2010. The long timescale led to real concerns that parts of the hospital would be out of date long before the building programme was complete. To tackle this issue, the authorities proactively engaged with the biggest and best IT providers to future proof the hospital.

## patient involvement

Right from the start, patients' representatives were involved in the design and planning of the new hospital and, wherever possible, the authorities have taken their views on board. For example, patient representatives requested an end to multi-bed wards; they wanted single

## ST OLAV'S HOSPITAL – facts and figures

**size of development:** 230,000 sq metres (55,000 sq metres of which is devoted to education)

**beds:** 900 (reducing to approx 800 by 2013)

**annual admissions:** 50,000

**annual outpatient appointments:** 280,000

**employees:** 5,500

**medical students/year:** 120

**total students** (incl. bioengineers, nursing etc): 1,200

**number of PCs:** 5,250

**number of wireless phones:** 3,200

**number of wired phones:** 2,600

**number of servers:** 15

**number of patient terminals:** 930.

rooms throughout the hospital with regular nurse contact and next-of-kin visits replacing contact with other patients.

Single bedded patient rooms do, of course, cost more to build than multi-bedded wards, particularly if each room has en-suite facilities. However, right from the start of the project, the authorities managed public expectations and made it clear that facilities at the new hospital



## 'The accountants are less happy – depreciation of brand new buildings amounts to a totally different sum than for 50 year old ones!'

would not be provided to a hotel standard.

Mindful that the ideology was to build from 'the patient perspective', a satisfactory compromise was reached whereby the hospital was designed with single patient rooms but with shared bathroom facilities – although there is a washbasin in each room. An arrangement that was very satisfactory to patient groups as, overall, patients spend very little time whilst in hospital in the bathroom.

One problem with single bedded rooms, when they are arranged either side of a long corridor, is that they tend to create distance between patients and nursing staff. This is not desirable from the patient's perspective and reduces the efficiency of hospital staff. To combat this problem it was decided to build the patient bedrooms, bathrooms, medicine room, store room and patient dining room in a pod-like arrangement around a central nurses' station; this ensures patients are just three seconds away from nurse contact.

Each patient room has been aesthetically designed: artwork adorns the walls and windows look out over green spaces. All rooms have a bedside monitor giving patients free access to TV, internet and phone services. Staff also make use of these monitors to access patient records at the bedside.

Bedside access to patient records is just one example of how new technology is being used to provide better patient care at St

Olav's. IT has been designed into the integral infrastructure of the hospital's buildings, it is not just 'bolted' on afterwards. Other initiatives include:

- a central call centre, manned by three staff, to deal with all queries, replacing the 57 different phone numbers previously used to arrange anything from bed cleaning to a mug of coffee
- issuing every member of staff with a mobile phone for use whilst on duty. Using these phones makes it easier for the hospital to allocate tasks to staff (for example a nurse can easily contact a porter, via the hospital's call centre). This system is used throughout the hospital for all levels of staff
- wireless technology throughout the hospital
- issuing all staff with ID cards that give access to doors, PCs, staff clothing
- vending machines which manage the issue of staff uniforms. Staff open the vending machine using their ID card and take out whatever clothing they need. The 'cost' of these items is then automatically charged to the appropriate department using chips incorporated in the clothes. When the clothing is returned the 'cost' is refunded
- laser guided robots that are programmed to deliver and collect food, stock, linen and post from central points on all hospital floors

- tubal transport system to move blood products, tissue samples and drugs to and from wards
- automatic waste system that automatically sorts waste.

### measuring its success

Is the new hospital a success? The new technology is certainly a success and it works particularly well as a tool for cost management.

For example, the uniform vending machines encourage staff to return uniforms once they are worn, which has significantly reduced the hospital-wide cost of uniforms, the robots help reduce stock and labour costs and, studies suggest, the wireless technology has resulted in an average time saving of ten minutes per employee each day (a cost saving of €6m a year).

The nurses are also happy. Surveys show that 93% of nurses welcome the holistic approach of the new hospital. The doctors and porters are slightly less positive. Some of the doctors (30%) are unhappy with their offices (which are generally smaller in the new hospital) and the porters have real concerns about the robots 'taking their jobs'.

Only time will tell what impact the new hospital will have on patients but, although not aware of any studies in this area, the authorities believe that building and designing the new hospital from the patient perspective will result in significant benefits to patient care.

### the economics

Is it economical? The hospital has cut 400 positions and 140 beds in the last year, but this is attributed to better management and a focus on costs as opposed to the new facilities and technology. The new buildings may have been a catalyst for change, but experience shows that it may take a year before a new building feels like 'home'.

The accountants are less happy – depreciation of brand new buildings amounts to a totally different sum than for 50 year old ones!

To find out a lot more about St Olav's visit [www.helsebygg.com](http://www.helsebygg.com)

Sharon Cannaby –  
Head of Health Sector Policy, ACCA