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The New T-Hospital

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We are facing enormous challenges to provide healthcare services while fulfilling the quality requirements of care made possible by medical innovations and the need among an increasingly ageing population. Many kinds of healthcare reforms are being conducted to improve the quality of treatment and the efficiency of production. A hospital is the key environment where specialised healthcare is delivered. The life span of a hospital building may be something from 40 to 100 years. This was not a great problem some 10 years ago.

Today, however, the rapid development of possibilities in medical care is also posing a challenge to hospitals and their architecture. New modes of treatment require innovative solutions in hospitals. Hospitals built 30-40 years ago are technically old fashioned.

The Planning of a New Hospital is a Demanding Task

Turku University Hospital (TUH) is the centre of second level specialised healthcare services for a population of 450,000 and the centre of third level for a population of 750,000. The new T-hospital, planned to be built by 2011, will provide acute and demanding specialised care services in areas of cardiology, internal medicine, traumatology, surgery, neurology, pulmonary medicine and cancer treatment as well as facilities for local primary emergency care. It is estimated that by 2010 the hospital will handle over 200,000 outpatient visits, approximately 100,000 inpatient days, and 10,000 surgical operations. The running cost is estimated to be approximately 130 million euro per year.

The First Part of the New

TUH hospital building was opened in 2003. It provides facilities for cancer treatment and dermatology as well as allergology. The total area of the hospital is 10,000 square metres. The second part of the new hospital will be completed during the years 2006-2010. It will include facilities for emergency and acute care as well as facilities for demanding and heavily specialised medical care in the areas of cardiology, haematology, other internal medicine, traumatology, surgery, neurology and pulmonary medicine as well as in local primary care. The area of the second part will be around 30,000 square metres.

The planning process included an estimation of future needs, making forward-looking scenarios, functional planning as well as a layout of the master plan. The purpose of the scenarios was to depict possible future situations and to study how these may affect the coming needs in a hospital environment. Functional planning included the analysis of present day methods of service production and studies on how these can be improved. The goal was to achieve a layout master plan which supports high quality, cost-effective service provision.

A Focus on the Provision of Care

The new idea is to build a hospital which is organised and led from the view point of care provision. Care provision is thus organised in treatment lines. The main patient treatment lines include cardiac, surgical, trauma, cancer, internal medicine, neurological patients and so on. In the very beginning, a patient flow analysis was carried out including these main treatment lines in the future hospital to analyse what kinds of resources patients in these lines need and how they move through the treatment process. Patient flows in relation to the operating theatre and intensive care units were also analysed. The results were used in the layout master plan for the whole hospital. The results showed that it is possible to reduce the number and distance of patient transfers radically when the facilities and resources needed in the treatment are correctly placed. This will increase both patient safety and the available time for staff to concentrate on the medical care of patients. The layout planned to support the treatment line care processes will also have some other advantages. The through put time of patients is argued to be reduced. Total optimisation of care provision can be reached, for example, by identifying those often bottleneck functions and equipping sufficient resources. The care line thinking also helps to follow and analyse the needs of the patients and the care processes. The aim is to intensify the use of resources and to improve the quality of care. By paying greater attention to patients and their care requirements, it is argued that production, efficiency and quality increase. Organisational and functional borders between care providing units are no longer barriers to efficient care provision.

The emergency area of the T-hospital consists of primary healthcare, specialised medical care and a special emergency treatment unit. The idea is that the incoming patient is always in the right place and she or he will get the right treatment the first time. The emergency unit also channels patients to the right care line according to symptoms. The hospital has 14 operating theatres that serve all surgical care lines. The intensive care

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unit serves all treatment lines as well as the intensified monitoring unit. The latter is a transitional area between intensive care and a regular ward making, for example, post intensive care safer.

Cardiac care is organised as “a hospital within a hospital”, including a cardiac care unit, invasive cardiac care area and a regular bed ward as well as an out-patient area. It also has its own imaging facilities because of its requirement for a large volume of imaging.

The Organisation of Facilities Aims to Minimise Patient Transfers

A stroke unit with 12 monitoring beds offers care for patients suffering from ischemic brain attacks. The stroke unit is located close to the angioradiology unit, together with neurosurgery and vascular surgery facilities. The care lines use a significant amount of angioradiological services and the layout solution minimises patient transfers.

The T-hospital will include 13 regular wards with 20-24 beds each. They will provide resources for in-patient care for all care lines. The surgical wards are located near the operating theatres, again, to reduce patient transfers.

The medical imaging facilities are not centralised but they are placed near facilities frequented by patients and where the care lines need imaging services. This reduces unnecessary patient transfers inside the hospital. This is the same for the placement of laboratory and other services.

The placement of other supporting services, such as the pharmacy, instrument services, material supply and dining services, are organised in such a way that the care producing staff does not need to use working hours for ordering, transferring or storing supplies, but they can concentrate on their core duty of care provision.

Patient records as well as other patient and other data management is organised electronically. This allows better aid for process monitoring and process guidance. All of this supports the flow-line model of treatment through the principles of efficient, quick-response, high quality and right-first-time care provision.

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