

Homerton University Hospital

Optimal staff rostering for healthcare employees



Objective

Homerton University Hospital in East London is an “acute” hospital, offering treatment and therapy for patients recuperating from severe, or acute, illness or injury. In 2005-06, it cared for 40,000 inpatients and saw more than 100,000 in its emergency department. Its nursing workforce of around 850 people has to be optimally scheduled to ensure effective coverage, high-quality patient care and staff satisfaction. With 24-hour emergency services and just over 400 beds, the hospital has to be staffed around the clock. Work shifts have to be allocated equitably, making sure there are enough nurses with the right skills to meet the needs of the patients.

Solution

Homerton properly staffs its shifts with CareWare Staff Schedule Optimizer, a hospital rostering system from Care Systems, Inc., a division of Planmatics, Inc. The staffing requirements of each shift are entered into the system along with special scheduling requests and shift preferences from the staff. Using ILOG CPLEX, the market-leading mathematical programming software, CareWare generates an employee roster in just minutes that ensures shifts are properly staffed with enough personnel and the right skill sets. CareWare has ensured that nursing resources are effectively utilized. This has significantly reduced the need for temporary staff. The hospital spends an average of £100,000 less per month on temporary staff since introducing CareWare.

ILOG Product: ILOG CPLEX

- **Industry:** Hospital
- **Application Name:** CareWare
- **Geographic Coverage:** Worldwide
- **Benefits:**
 - ▶ Proper staffing
 - ▶ Equitable rostering
 - ▶ Huge savings



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Proper and fair staffing

ILOG CPLEX serves as the solver in CareWare, handling the complex calculations used to generate the schedules. Typically, ILOG CPLEX produces several solutions and then derives from them one schedule matching as many constraints as possible. These constraints include required staffing levels, employee preferences and minimal overtime. CareWare has proven easy to use, and Homerton's personnel like having the roster on the computer, where they can reach it easily. When an unexpected staffing problem arises, like a sick employee, transit strike or holiday, CareWare uses the resulting parameters to generate a new schedule in minutes. Overall, Homerton's employees are quite satisfied with the new system, and the hospital even uses it as a selling point in recruiting new staff.

Benefits

With ILOG CPLEX, CareWare has greatly improved staff scheduling at Homerton University Hospital:

- Schedules are produced further in advance, allowing employees to better plan their personal activities.
- The schedules are accurate and easier to understand.
- Employees have greater access to the schedules because they can be easily reached through the hospital's computer network.
- Scheduling mistakes and unexpected events can be easily addressed, and new schedules produced in minutes.
- Staff are evenly distributed and shifts have the required skill sets.
- Greater confidence that there are enough nurses with the right skills for the workload.
- Employees have become more "computer literate," furthering the cause for more IT resources at the hospital.
- CareWare interfaces with Siemens INVISON, and Kronos Time and Attendance.

About Homerton University Hospital

Homerton provides general hospital services and specialist care in obstetrics and neonatology, fetal medicine and neurorehabilitation. It is one of England's first NHS Foundation Trusts, providing services for National Health Service (NHS) patients.

Learn more at www.homerton.nhs.uk.

About Care Systems

Care Systems empowers healthcare organizations to cut costs and optimize their business practices with unique software systems and performance improvement consulting practices. Its flagship product, CareWare Staff Schedule Optimizer, helps maximize workforce productivity and enhance staffing effectiveness in large healthcare enterprises. Learn more at www.caresystemsinc.com.

ABOUT ILOG'S OPTIMIZATION PRODUCTS

More than 1,000 commercial customers, including 160 members of the Global 500, use ILOG optimization tools and engines to solve the world's most challenging planning and scheduling problems. ILOG optimization products are also used by a majority of the leading supply chain management software vendors, as well as in research programs at over 1,000 universities around the world, making the products the "gold standard" for performance and solution quality in the operations research community. For more information and a complete list of customer references, please visit <http://optimization.ilog.com>.

ABOUT ILOG

ILOG delivers software and services that empower customers to make better decisions faster and manage change and complexity. Over 2,500 global corporations and more than 465 leading software vendors rely on ILOG's market-leading business rule management system (BRMS), optimization and visualization software components, to achieve dramatic returns on investment, create market-defining products and services, and sharpen their competitive edge. The BRMS market share leader, ILOG was founded in 1987 and employs more than 700 people worldwide.

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"We chose CareWare because it was clear that the technology powering the CareWare approach to rostering was above and beyond any technology that existed on the market. Care Systems seemed to understand the challenge of rostering and offered manager incredible tools to handle this challenge."

– Rachel Willingham
 Professional Development
 Senior Sister
 Homerton University Hospital
 NHS Foundation Trust



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