

SYSTEMATIC **COLUMNA**

Service Logistics



CASES

IT support of service logistics for easy coordination & planning of service tasks

- Improved overview and increased efficiency
- Optimised resource planning and management
- Increased patient safety

CASE

Customer: Bispebjerg Hospital

Location: Denmark



Improved patient service at Bispebjerg Hospital

Challenge	Solution	Value
<ul style="list-style-type: none">• Telephoning creates bottlenecks in communication• Inadequate overview of orderlies and their location• The time and steps spent per task is unsystematic, causing inefficiency	<ul style="list-style-type: none">• A user-friendly and intuitive system• Overview of own and colleagues' tasks• Fewer steps and less time spent per task	<ul style="list-style-type: none">• An overview of tasks and capacity creates transparency• Optimised workflow• Increased patient safety• Increased independence in the work of orderlies

Many hospitals have the potential of making both the coordination and execution of the orderlies’ tasks more efficient. Often, a so-called dispatcher is responsible for distributing the service tasks of the hospital and the telephone, which is the primary method of contact, is busy. This means that bottlenecks occur in relation to booking and distribution of service tasks, which results in an inefficient workflow and increased waiting time.

Previously, Bispebjerg Hospital has also experienced problems in connection with distribution of tasks and they have had a limited overview of orderlies and their tasks. Often, this unsystematic distribution has resulted in too much time and too many steps between tasks, where an orderly has returned from a task empty-handed or has had to walk back to the department to get the next task. This has created increased waiting time and made patient service less efficient.

To strengthen the coordination and execution of service tasks, Bispebjerg Hospital has chosen to invest in Systematic’s Task Management System. During this process, the hospital’s focus has been on involving the employees to examine how to make the daily work of orderlies more efficient in order to increase patient safety.

A focus on change management combined with Systematic’s Task Management System has resulted in a strategic selection of service tasks, which provide better opportunities for involvement with the patient.

Strengthened coordination and efficient logistics

The task management system is one of six modules, which make up Columna Service Logistics. With the system, hospitals get the necessary overview needed to optimise and make the service area more efficient. The solution enables users to see where staff, equipment and tasks are located as well as what the status of the different tasks is. In this way, the nearest orderly can complete a specific task, resulting in faster execution of tasks and service staff having to walk fewer steps per task.

Therefore, healthcare staff does not need to contact the orderly or dispatcher to get an update, which leads to fewer interruptions and less time wasted. Overall, hospitals achieve a higher level of transparency and documentation of service tasks, which improves the quality of logistics, delivery safety and optimisation of the service department.

Changes in the workflow

At Bispebjerg Hospital, the Task Management System has effectively changed the way service staff works. Here, the orderlies experience a high level of independence and faster and more flexible help from colleagues. Due to fewer interruptions, the orderlies are better able to be present and care for the patient during e.g. transport.

At Bispebjerg Hospital, the orderlies are divided into groups that book tasks from the same task pool, which means that they can easily help each other. When the orderlies are away from the department, they can take on tasks at the entire hospital based on the principle of subsidiarity, and via an app, they can see the nearest tasks. Thereby, they are no longer limited to a small section at the hospital and they are able to join other groups during bustle.

Through the open structure in the Task Management System, the orderlies are able to work across both functions and tasks. Nurses and other clinical staff who order service tasks no longer have to do so via phone call, since the tasks are visible to all relevant orderlies in the system. The Task Management System and its new and systematic approach have therefore effectively changed the workflows of orderlies at Bispebjerg Hospital.

Efficient everyday life

Because of the changes in work procedure where orderlies now have the opportunity to take on any available task, nurses and other clinical staff are experiencing a far better task flow and overview. This contributes to a better follow-up as they now receive status on tasks, an employee tells:

“It is nice to be able to let the task go when it has been booked and then pay full attention to the next patient – and I know who comes.”

An intuitive and user-friendly interface has made the booking procedure simpler for the ones ordering tasks, and at the same time, the task and status overview eases the handover process among the orderlies at the hospital.

The orderlies experience a higher level of calmness because of fewer interruptions during the workday. Now, the orderlies are also able to contribute to the task flow by setting up a task themselves. The Task Management System contains a tool for documenting the orderlies’ daily work, which helps visualising workloads and bottlenecks and thereby optimising work planning at the hospital. Because of this, it has become easier for the staff at Bispebjerg Hospital to improve the work planning so that staffing matches the demand for capacity.

In the end, patients will experience a higher level of service and safety since the strengthened coordination and planning enable orderlies to provide a more patient centred service.

CASE

Customer: Sunshine Coast University Hospital

Location: Australia



Sunshine Coast University Hospital increases efficiency using Columna Task Management

Challenge	Solution	Value
<ul style="list-style-type: none">Operational Support Services to be provided in a new and very large hospital facilitySupport for a new model of care with multi-skilled Patient Service Assistants capable of working in any ward or departmentSystem support to meet demanding KPI's and response times	<ul style="list-style-type: none">A very user-friendly system that operates with automatic distribution of service tasks to teams across the entire hospitalA system that provide clinical staff, PSA's and service management with a relevant and fully transparent view of tasks to be performedA system with easy access to task data and detailed reporting for business insights	<ul style="list-style-type: none">Highly flexible and more effective use of service resourcesBetter real-time view of service demand and resource availabilityImproved service deliveryImproved timeliness in service deliveriesEasy access to KPI reporting and other business data

In March 2017, Sunshine Coast Hospital and Health Service (SCHHS) opened the \$1.8 billion Sunshine Coast University Hospital (SCUH) - the first new, not replacement hospital - in Australia in 20 years. This included investments in more than 1,000 new staff members as well as state-of-the-art equipment. All to provide excellent healthcare services to an increasingly growing population.

The size of the hospital is impressive; it has a capacity of more than 700 beds and can be expanded to 900 beds beyond 2021 if needed. Among other things, this includes an emergency department, state-of-the-art bed wards and a Maternity Service department that has seen more than 1,000 new Australians being born in less than a year. All in a facility that covers a surface area of 400,000 m2 – which is the equivalent to approx. 100 football fields.

The challenge

For the Operational Support Services that look after all the non-clinical functions of the hospital, the main challenge was to ensure optimal service efficiency in a facility of this impressive size.

The underground service tunnel alone stretches 490 meters from the Facilities Management Centre to the main hospital building. Thus, service staff could easily spend a lot of time overcoming the tyranny of distance.

With this in mind, Operational Support Services searched for an IT system to support a more efficient model of service delivery with multi-skilled Patient Service Assistants capable of working in any ward or department.

The following were the primary system criteria:

- A system with a high degree of user-friendliness, especially seen from the clinical perspective when ordering service tasks
- A self-automated system that would allow Patient Support Assistants (PSAs) to pick up relevant jobs or jobs near to them, without having to wait for their next job to be allocated to them by a supervisor
- A system that as a minimum would allow management easy access to reporting and business insights, enabling operational changes to ensure optimal efficiency and business support.

After a thorough search and tender process, the Danish IT company Systematic and its Columna Task Management Solution was chosen.

“Key objectives were the user friendliness – really from a clinical perspective, as this is important to overcome any initial reluctance to have such a system” - Catherine Buick, Director for Operational Support Services

Meeting the criteria and ensuring efficiency

Although Systematic was an unknown company name to SCHHS, the company is in no way new to software solutions for healthcare. With more than 20 years of experience dealing with progressive and innovative hospitals in Europe, Systematic’s healthcare offerings range from a comprehensive Electronic Health Record to a full suite of Hospital Logistics solutions.

With Columna Task Management, the SCUH is achieving its business goals, as the system currently supports the handling of more than 45,000 service tasks a month (October 2017) and keep a fleet of AGV’s busy with more than 550 return trips a day.

Meeting the initial criteria of a high degree of user-

friendliness for clinicians was met by a simple and intuitive user interface, which also provides status feedback on tasks by means of colour changes in the different task type icons. An integration to the Patient Administration System (PAS) ensures that only a minimal amount of typing is necessary, as the Patient Unique ID automatically fills out the name field or vice versa if the clinicians starts typing the name first. Furthermore, the last known location of the patient is automatically inserted which means that all patient transports and patient assists have a suggested origin - small, yet effective measures to help in the busy working life of a nurse.

Integration to service call buttons at the bed wards was also implemented. This ensures that by a single press of a button, clinicians can generate service tasks in the Task Management system – either a PSA assist or a discharge clean. The results of this integration are fast assistance and efficient turnaround times for single occupancy rooms at SCUH.

The second criteria of the system allowing Patient Support Assistants to allocate jobs to themselves instead of always waiting for their supervisor was important, however, in the Columna Task Management system, SCUH found it was not necessarily a situation of having either





CASE

Customer: North Denmark Region

Location: Aalborg University Hospital, Denmark



or, because both options were available as a dual workflow. In the Columna Task Management System, the PSAs see a list of relevant tasks to choose from on their handsets, either listed in order of priority and time or by distance to the task origin. Ollie, a SCUH PSA is clearly happy with the system – and as he mentions:

“The visibility of tasks is good – the timeframe – all the information is there... before we did not have that. It has made our lives easier”.

In addition, if assistance is needed for handling two-person tasks one simply swipes right and a list of the nearest colleagues appears. The majority of tasks are handled by the PSAs at SCUH, but supervisors also have a clear view of all tasks from the Task Overview screen. It is also from this screen that they can manage the workloads of each PSA and assign a task directly. This enables managers to balance the service demand with the resources available across teams and departments.

“The Task System is very good because the tasks are managed by the staff themselves” - Anne Pedersen, Integrated Services

Columna Task Management also fulfils the third prime criteria of getting easy access to reporting and business insights. The Management Information Download allows SCUH to generate and analyse information about its service operation using the 10 built-in standard reports. The business insights for SCUH have helped build awareness of what the department actually does on a daily basis – as expressed by Catherine Buick, Director for Operational Support Services:

“It has provided us with a tool to provide information to Management, which is great... It certainly creates an awareness of what we actually do and the resources it requires. Also, we now have evidence on how we are meeting our KPIs, which is fantastic.”

“Access to reports allows us measure our KPI’s and see how we are performing” - Anne Pedersen, Integrated Services

Summing up the business benefits

The system has allowed a range of small and efficient teams under Operational and Support Services to execute more than 45,000 tasks a month. This is quite impressive considering the size of SCUH and the distances which PSAs have to travel. The system has also allowed PSA teams to meet internal KPIs and improve response times.

The Columna Task Management System plays a significant role in making all this possible, as it ensures transparency and efficient handling of service tasks.

“Without the system, we would not have been able to have our new model of care, necessary for this large facility, working so efficiently” - Catherine Buick, Director for Operational Support Services

About: Sunshine Coast University Hospital

Sunshine Coast Hospital and Health Service (SCHHS) provides public health care to communities in the Sunshine Coast, Noosa and Gympie local government areas of southeast Queensland. The catchment extends from the coast to the hinterland, from Caloundra in the south to Gympie in the north. Currently, this covers a population of about 400,000 people. In March 2017, SCHHS opened Sunshine Coast University Hospital (SCUH) as part of the vision, delivering ‘health and wellbeing through exceptional care’.

Aalborg University Hospital optimises service logistics and personnel procedures

Challenge	Solution	Value
<ul style="list-style-type: none">• Lack of efficiency in planning and coordination of hospital tasks• Poor communication• Lack of shared information about status of tasks and staff location	<ul style="list-style-type: none">• Flexible and intuitive solution, accessed by staff through smartphones• The system suggests the most effective sequence of tasks	<ul style="list-style-type: none">• Increased patient safety• Optimised workflow• Increased awareness of colleague and task status• Greater efficiency: less time spent waiting for patients and clinical staff

Improved overview and service logistics

Aalborg University Hospital decided to run the pilot project because of issues such as a lack of proper overview of service personnel’s whereabouts and status, and because too much time was being spent on the telephone when tasks were being transferred. By working closely in ongoing workshops, both staff and management were able to be involved in the development of the Task Management application.

The aim was to develop a solution that matched user needs as efficiently as possible. Task Management has been running as a pilot project in Aalborg University Hospital since February 2013 and the results are already significant and measurable. The former procedure was handled by a coordinator who received all incoming tasks for service personnel over the telephone. These were then transferred and verbally allocated to the service personnel.

“Task Management means less waiting time for patients and better service logistics” - Lars Esko, Administrator, Aalborg University Hospital

At Aalborg University Hospital

- Telephone calls have been reduced by **50%**
- Communication errors have been reduced by **66%**

Task System is now part of daily procedures

Using existing infrastructure at the hospital, the application collects information about where service personnel are in the hospital. Service personnel use smartphone to see where their nearest colleagues and tasks are. This increases efficiency and patient waiting time is minimised.

“One of the changes is that secretaries and clinical staff, for example in the x-ray department, enter their programme for the day into the system in the morning. This means we have much greater scope for adjusting our procedure accordingly because tasks don’t come in on an ad-hoc basis any longer” - Lars Esko, Aalborg University Hospital Administrator



CASE

Customer: Nordsjællands Hospital

Location: Denmark



Significant and measureable benefits

A crucial reason for why Task Management has become so successful at Aalborg University Hospital is the constructive way its staff-locating function is used. There is not a competition to see who can carry out the most tasks. Management does not raise any criticisms about where service staff are in the hospital either. This has meant that a learning culture has evolved, where staff exchange and discuss ideas with each other and plan together. The staff have built up a much greater overall understanding – focus has moved from the individual level to the ward as a whole. Exchanging and discussing ideas and mutual planning makes it easier for the staff to understand the individual's role and clarifies how the individual member of staff can contribute as part of the wider team.

Less waiting time and fewer interruptions

Deployment across the entire hospital is well underway.

“While the system is still being deployed, we still have a coordinator function. But the number of calls to the coordinator has fallen by 40-50 %, and this will continue to fall in line with more wards using Task Management.”, says *Lars Esko*, and continues:

“Obviously, ensuring that patients get the best possible treatment is utmost in the minds of all of the staff at the hospital. Task Management means we can do our jobs with less waiting time, better information and optimal service logistics.”

Another benefit the system delivers is that clinical personnel experience far fewer interruptions during the day. Now they can now place their tasks with service staff in the morning and concentrate on more important tasks. Because they experience far fewer interruptions, the level of stress has been minimised.

Task Management collects a range of data about peak load periods, types of task, etc. The management can use this information, for example to organise a shift plan, analyse waiting times, improve service logistics, etc.

Total number
of users:

144
Orderlies

600
Secretaries

2.500
Nurses

1000
Doctors

Data-driven logistics management provides overview and more efficient use of resources

Accurate data contributes to fast, reliable service for patients, optimised workflow and better dialogue between departments and staff.

Challenge	Solution	Value
<ul style="list-style-type: none">• No data, measurement or overview of service logistics• No overview of the service staff's tasks• Slow, manual communication procedures	<ul style="list-style-type: none">• A service logistics tasking system that provides transparent overviews of what needs doing• Easy access to data and reports• A system that creates more efficient workflows	<ul style="list-style-type: none">• A transparent system that delivers data that can be used to optimise workflows• Faster, safer and more reliable service for patients• Greater flexibility and more efficient use of the hospital's service resources

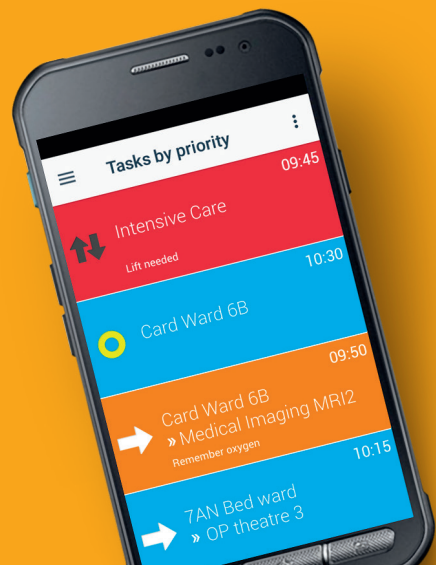
Digitisation creates new opportunities

In the spring of 2018, Nordsjællands Hospital – which consists of the hospitals at Hillerød and Frederikssund – implemented the Columna Service Logistics system as part of its development strategy, which is based on the data-driven management of the logistics operations in this Danish hospital.

Since this setup was implemented, Nordsjællands Hospital has undergone major changes in its day-to-day logistics, which is now based on data from the service logistics system. Previously, the staff used only manual procedures. This meant that when a task was to be ordered and dealt with, the departments had to either call the central office, which allocated the task appropriately, or placed a direct call to the particular service assistants working for each department.

The implementation of the digital Columna Service Logistics system means that the service personnel at Hillerød and Frederikssund Hospital now have a comprehensive overview of the tasks they are required to deal with, while also generating data that helps the hospital provide the best service for patients.

“Digitisation of the whole process is in itself a huge gain for our logistics operations. What has been done and how it has been done are now both documented. This has significantly changed the way we collaborate with the different departments,” explains John Bjørn Olsen, development manager for Facility Management at Nordsjællands Hospital. John Bjørn Olsen elaborates: “The volume, frequency and speed of our service tasks have all improved, because we now have a clear picture of what we have to deal with.”



Data creates better communication between service staff and departments

The overview of the service logistics in the Columna Service Logistics system has resulted in a large amount of data that the hospitals are able to use to improve communication between the different departments, hospital management and the service centre. The data that the service logistics helps generate is used for several different purposes.

One example is when service management has to deliver a regular report to the Executive Board every quarter. The data now collected is used to present how service personnel have performed in relation to the service agreements. This type of reporting was simply not possible before introduction of the Columna Service Logistics system.

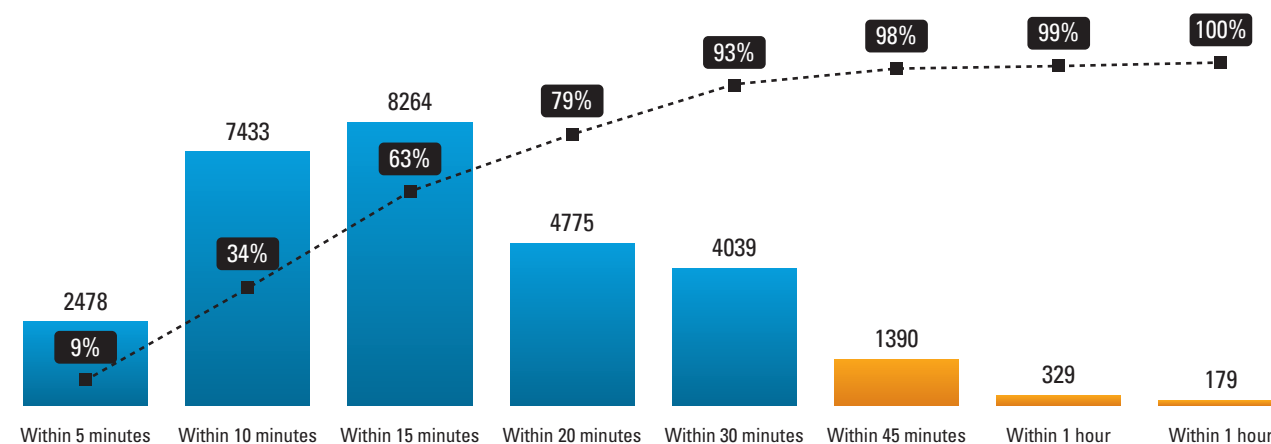
The way Nordsjællands Hospital makes use of data has also led to organisational changes in terms of logistics, explains John Bjørn Olsen: "We can now move tasks between teams,

with opportunities to ensure a good match with the particular skills available. This gives us a better focus on skills development among our service staff, which in turn creates more opportunities for the different teams and provides greater flexibility in our overall logistics setup."

Data creates the foundation for better dialogue

Data has also had a significant impact on the way service staff and the departments cooperate in day-to-day operations.

Data from the Columna Service Logistics system is used at meetings between service management and the departments. The data that service management receives from the system is used to analyse when events or issues arise that present challenges in day-to-day operations. "Data means that we can now see where and how our service efforts were distributed in specific episodes," explains John Bjørn Olsen.



The overview shows fulfillment for response times distributed at selected time intervals.

- The columns show the number of solved tasks. The blue color indicates tasks that are solved within the agreed service target.
- The black line shows the accumulated goal fulfillment.

"These changes have been decisive. The service staff now know exactly where and how they can tackle the tasks they are presented with. Moreover, they now have a clear process for getting the tasks done in cooperation with the departments. This gives a completely different approach to tackling these tasks."

John Bjørn Olsen, development manager for Facility Management at Nordsjællands Hospital.

Before the implementation of the new service logistics system, communication between the different departments and teams was different. If problems arose and a task was not dealt with correctly, the head of the department concerned get hold of the service management team, who then informed the service staff concerned.

The flow of communication has now been reversed, so it is the service managers who call in the departments for meetings, where they present how the service personnel have performed, based on the data to which the service logistics system has given them access.

"Previously, it was always a question of what we from the service team had been unable to deliver, or could do better. It could be that an operating theatre had not been cleaned on time, or that a patient had arrived late for an examination. After the implementation, we have a clear overview of when and how problems arose, and this can give rise to a good dialogue between the department and service staff," explains John Bjørn Olsen.

The service management team now holds regular meetings with the departments, where they have an open dialogue

about how best to deliver, based on concrete data. This is a process that contributes to an improved workflow between departments and service personnel.

Data has created a better distribution of tasks

The availability of relevant data has given Nordsjællands Hospital a clear insight into the relationship between the orders placed for service tasks and the time for expected delivery of these tasks. For example, the system shows that many tasks are ordered just before staff in the departments go for lunch, in connection with doctors' ward rounds or in conjunction with shift changes. It is clear that peaks and bottlenecks occur in the logistics during these particular times, when the service personnel are unable to deal with the number of "orders" received.

"In cases like these, data has given us a way to register and measure these times, which has in turn contributed to a good, open dialogue between the service staff and the departments about why the demand peaks occur," says John Bjørn Olsen.

For the service personnel, the solution to this has been a reorganisation of the staffing of the various teams at different times throughout the day. At the same time, the departments have focused on getting the tasking orders spread out over the day, so that things like a change of shift does not generate a lot of new taskings at the same time.

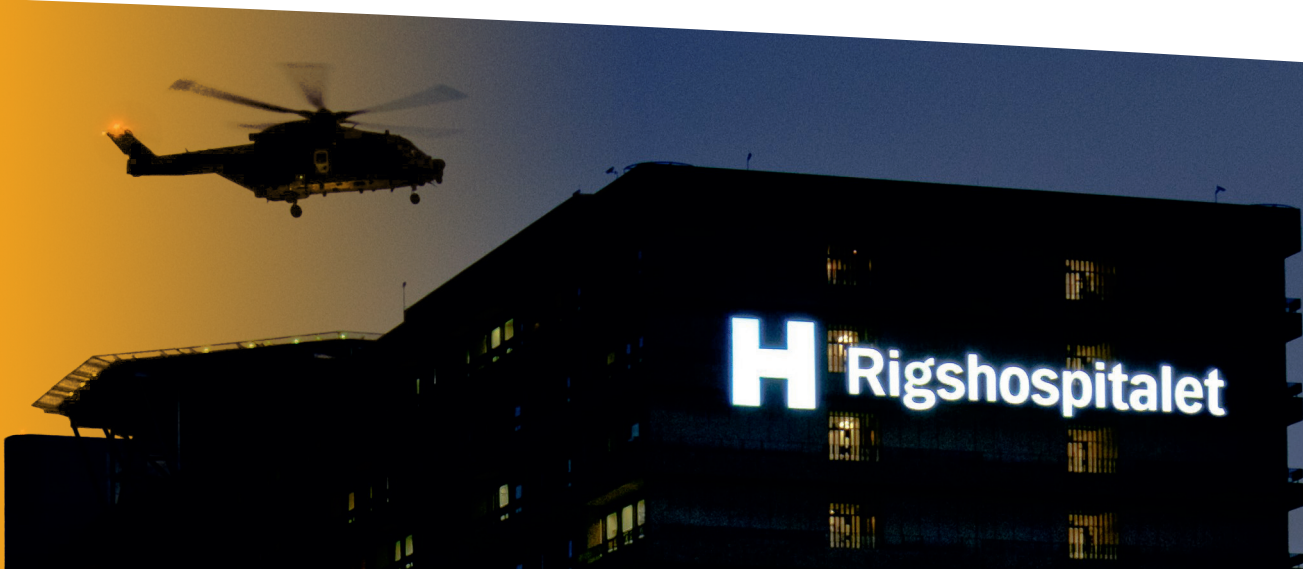
"It is a good example of where data has really contributed to improvements. Previously, we might have an idea about where the challenges were, but now we can actually document this with data," as John Bjørn Olsen explains.

At Nordsjællands Hospital, data has created a strong foundation for better communication and dialogue, which benefits every part of the hospital when the big logistics jigsaw has to be pieced together every single working day.

CASE

Customer: Rigshospitalet

Location: Denmark



Columna Service Logistics: making the porters their own coordinator

After one year of using the Columna Service Logistics task management system at Rigshospitalet in Denmark, the day-to-day work of the hospital porters became less stressful, as they each became their own coordinator.

Challenge	Solution	Value
<ul style="list-style-type: none">• Difficult, time-consuming coordination because one employee was responsible for receiving calls and then passing on the instructions• Stressful day-to-day work for porters, with lots of calls disrupting their real work• Communication misunderstandings and unclear descriptions of work assignments	<ul style="list-style-type: none">• A system that automatically makes tasks available to all relevant employees• From “push” to “pull” effects, where the porters themselves select appropriate tasks using their smartphones• A system that provides a transparent over view of tasks and clear work assignments	<ul style="list-style-type: none">• Staff assume shared responsibility and work together to tackle tasks• Reduced stress and a better working environment for the porters• Full transparency and documentation of data relating to orders for porter duties and how they are carried out

In the heart of Denmark’s capital city of Copenhagen lies Rigshospitalet – one of Scandinavia’s largest hospitals, with 1244 beds. Despite its size and national importance, Rigshospitalet (Danish for “the National Hospital”) used manual procedures to deal with patient transport and other logistics tasks right up until summer 2018. At all times of day and night, the different jobs were allocated and explained via telephone calls between medical staff and porters.

“You have to remember that Rigshospitalet used to run entirely on phone calls from one porter to another – the hospital porters allocated all the different tasks themselves. Depending on which particular organisation

the porters reported to within Rigshospitalet, we had one person in our team responsible for receiving all calls and then passing on the assignments,” explains Chief Porter, Kristoffer Hofman.

That’s how it was done until the first steps towards a major change in the porters’ day-to-day work procedures were taken. The Columna Service Logistics task management system was first implemented at the Radiology Clinic, through which a very large number of patients pass every day. The routine work at this clinic may therefore seem hectic. According to the head porter at the Radiology Clinic, Gert Andersen, that’s why the porters working there greatly appreciated replacing their

constantly ringing phones with text messages.

“This has made life easier, because now I don’t get interrupted by having to answer calls while I am transporting a patient, for example. The tasks we’re given are pre-defined and just arrive on my phone, making my whole job much easier. In the past, I received lots of calls wanting to clarify who should do what. That doesn’t happen any more, because the phones and the porters are able to coordinate everything themselves,” says Andersen.

Clear documentation and improved workflow
According to the deputy head of the Rigshospitalet Service Centre, Lars Buhl, the porters are still getting used to the task management system, which has changed their working day in several ways. But despite the size and complexity of Rigshospitalet, working with the system has got off to a good start.

“The Columna Service Logistics task management system works well at Rigshospitalet. Our ability to document the work has improved significantly, but we are still working to create a mindset among the porters about documenting the things that are not actually registered in the system – by adding comments about tasks that took longer than expected, for example,” explains Buhl. His views are supported by Chief Porter, Kristoffer Hofman, who – in addition to the documentation benefits – has also noticed improvements in the working environment for the Rigshospitalet porters.

“The stress factor has shifted, because the phones no longer ring while porters are busy with a task. This means that our porters can keep their full focus on the task at hand and on the patients they are dealing with. When they’re finished with the task they simply pick up the phone and see what assignments have come in,” says Hofman. This also means the porters avoid unnecessary journeys back and forth to the duty room, because the next task

always starts from where the previous one ended.

Each porter now his own coordinator
Implementation of the Columna Service Logistics task management system also means the close collaboration between porters and nurses has changed. Instead of just passively being tasked with a particular assignment, the porters can now be more proactive in the overall coordination work, because they have a full overview of the tasks that need doing and can select the assignments that are right for them, thus saving both time and walking. “You could say that each porter has become his own coordinator, because the porters now have an overview of which tasks they have to perform. This makes it much easier to prioritise, so each porter can make best use of his skills and capabilities. When there’s full understanding and maximum clarity in setting up the tasks, collaboration between nurses and porters works great,” explains Columna Service Logistics facilitator at Rigshospitalet, Jesper Christensen.

Columna Service Logistics provides a bright future at Rigshospitalet
As with all new systems in a large hospital, it has been necessary to ensure that close, ongoing dialogue between the hospital and Systematic takes place, so the setup can be improved and adapted to the individual situation and hospital. Both Systematic and Rigshospitalet have come a long way in this process, and are optimistic about the system’s future.’

“Our experience with the Columna Service Logistics system as a working tool and a management tool has been positive, because the possibilities for documenting or examining a wide range of procedures are virtually unlimited. That is why we see a lot more opportunities to use the system to support work procedures and document the use of resources etc.,” concludes Lars Buhl.

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About Systematic

Systematic is an internationally renowned developer and supplier of off-the-shelf scalable software products for use in the healthcare sector, the defence industry, financial services and the public sector. Headquartered in Denmark, we also have subsidiaries in the United Kingdom, the United States, Australia, UAE, Singapore, Germany, Finland and Sweden.



Systematic is certified as a CMMI Level 5 company.

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