

Seven day hospital services: case study

University Hospital Southampton NHS Foundation Trust

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We support providers to give patients safe, high quality, compassionate care within local health systems that are financially sustainable.

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Summary

University Hospital Southampton NHS Foundation Trust (UHS) has established its seven day service by developing a culture of clinically led innovation and building a sustainable workforce model that has closed gaps in patient pathways and ensured continuity of standards 24 hours a day. UHS say this approach has led to an increase in weekend discharge rates and reductions in length of stay, black alerts and bed occupancy. This has been funded through the national tariff since 2010/11, and the Sustainability and Transformation Fund in 2016/17. It costs about £3.7 million per year, mostly on additional staffing. Detailed reviews of patient pathways and staff rostering have been key to out-of-hours service development. Maximum financial benefits are £3.6 million.

Table 1: University Hospital Southampton’s seven day service model

Provider type	Large acute teaching provider
Objective	To improve ‘ patient safety and the continuity of clinical standards ’
Date implemented	From 2011 (phased over time)
Service model description	A streamlined and uninterrupted seven day service made possible by building a sustainable workforce model that ensures the continuity of standards and staffing levels
Priority clinical standards – March 2017	Met priority clinical standards 5 (access to diagnostics), 6 (access to consultant-directed interventions) and 8 (ongoing review)
Key benefits	<ul style="list-style-type: none"> • 86% reduction in black alerts • 5% rise in weekend discharge rates • 46% growth in the number of elective operations on a Monday compared to 25% during the rest of the week
Key enablers	<ul style="list-style-type: none"> • Critical mass • Innovative staffing • Financial stability • Culture
Key challenges	<ul style="list-style-type: none"> • Resistance to change • Recruitment and retention • Discharging into community and social care settings
Maximum financial benefits	£3,573,000 per year
Current annual costs	£3,654,000 (0.6% of patient income)
Cost drivers	<ul style="list-style-type: none"> • Almost all costs relate to additional staff, including consultants, therapists, pharmacists and ward clerks • Non-pay costs relate to opening weekend beds and out-of-hours surgery expansion

¹ Benefits measured during implementation of seven day services.

Introduction

The seven day hospital services programme is designed to ensure patients requiring emergency treatment receive high quality, consistent care, whatever day they enter hospital. Local systems need to work together to deliver effective and compassionate seven day services that meet the four priority clinical standards.²

This case study describes the service model being implemented at UHS. It provides background information about the approach and identifies the costs, benefits and enablers that have made the model at UHS successful.

Service model

UHS provides acute health services from four sites. It serves a population of about 1.9 million in south Hampshire, and runs a Type 1 and 2 accident and emergency service from Southampton General Hospital. It also provides specialist services such as neurosciences, cardiac services and children's intensive care to more than 3.7 million people in central southern England and the Channel Islands.

In 2011, the trust began developing its seven day service outside core hours, based on a Lean³ methodology. Its goal was to improve '**patient safety and the continuity of clinical standards**' by building a sustainable seven day workforce model. The trust initially set up a 'hospital at night' programme that developed into a standardised seven day service programme focusing on identifying services not available outside core hours, and redeveloping rotas to ensure senior levels of care were provided to cover gaps. It reviewed patient pathways in 2015 to identify the strengths and weaknesses of its seven day and out-of-hours service, focusing on workforce. The trust used this review to prioritise service change and develop business cases for investment in seven day services.

² *Seven day services clinical standards*, February 2017.

<https://improvement.nhs.uk/resources/seven-day-services/#h2-the-10-clinical-standards>

³ NHS Confederation: *Lean thinking for the NHS* www.leanuk.org/media/37654/Lean-Thinking-in-the-NHS-Daniel-T-Jones-and-Alan-Mitchell.pdf

Key benefits

Since the development of its services, UHS has seen a 5% rise in weekend discharge rates,⁴ and an 86% reduction in black alerts. The number of elective operations on a Monday has grown 46% compared to 25% during the rest of the week.

UHS met three out of four priority clinical standards in March 2017.

Table 2: Performance against the priority clinical standards at March 2017

	Standard 2 (admission)	Standard 5	Standard 6	Standard 8
University Hospital Southampton NHS Foundation Trust	74%	100%	100%	93%
Status	Not met	Met	Met	Met

Workforce

In 2010/11 UHS invested in consultants to improve patient safety and hospital flow. This resulted in a cost per weight activity unit (WAU) that was 12.4%⁵ above the national median. However, overall cost was below the national mean and the trust has a reference cost index of 94% (2015/16).

UHS has developed a clinical systems programme called Doctors' Worklist (DWL) to record patient information and staff responsibilities as patients progress along a pathway. This system allows workloads to be monitored and has enabled UHS to accurately predict workforce mix and effectively review consultant job plans.

In 2016, to cover gaps identified by DWL the trust increased its consultant workforce by 6%.⁶ During this period the trust observed 11 black alerts, down from 79 in 2012/13. Availability of senior staff at weekends and out of hours across the trust's four divisions ensures patients are referred to the right place, and it has

⁴ Data source: University Hospital Southampton NHS Foundation Trust; calculated as weekend discharges per day as a percentage of weekday discharges per day between 2014 and 2017.

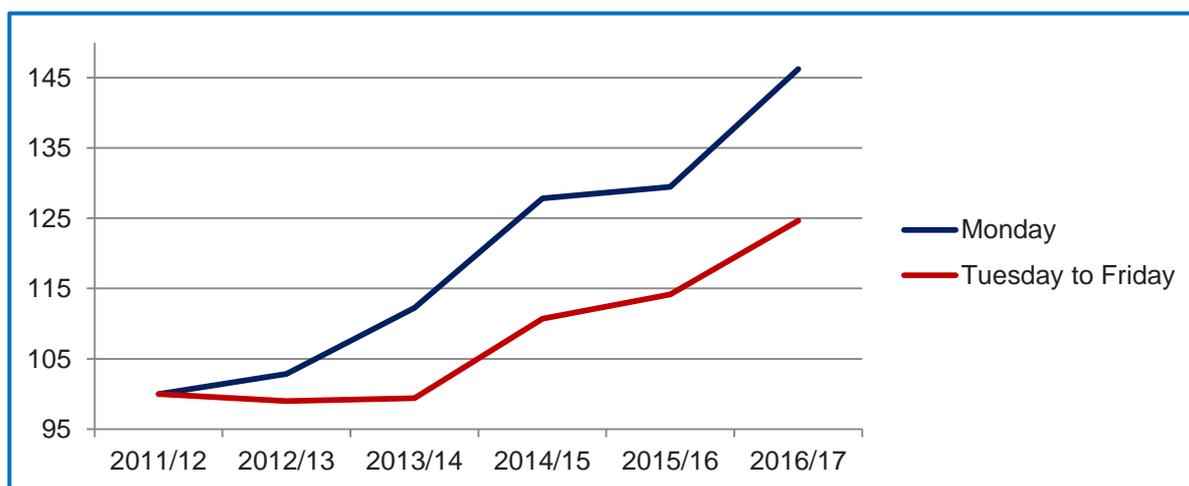
⁵ University Hospital Southampton NHS Foundation Trust: *7 day working: workforce planning and approach*.

⁶ January 2016: 546; December 2016: 577.

increased weekend discharge rates. Better weekend flow has reduced pressures on Monday morning, making it easier to cope with variations in demand and release beds to elective care. In the five years to 2016/17, the trust increased elective operations on a Monday by 46% (See Figure 1).

For low volume out-of-hours services, such as endocrinology and endoscopy, the trust has joint rotas with Isle of Wight NHS Trust, Portsmouth Hospitals NHS Trust, Hampshire Hospitals NHS Foundation Trust and Salisbury NHS Foundation Trust, which ensure that a seven day service is feasible.

Figure 1: Percentage increase in elective operations (2011/12 = 100)



Source: Dr Foster

Out of hours

The most significant workforce gap identified across the trust was between 4pm and 8pm throughout the week. This meant that clinical standards 5 and 8 were not being met. For example, the surgery care nursing team observed there were over twice as many staff between 8am and 4pm than between 4pm and 9pm.

As a result, nursing leads developed a business case for an additional nurse practitioner to work as an out-of-hours co-ordinator from 3.30pm to 11.30pm during the week and 8am to 11.30pm at weekends. The aim of the role is to provide a seamless out-of-hours nurse practitioner service, clinical leadership and manpower

to support stress points (after 4pm and at weekends), and comply with clinical standards. The budget for this role was agreed in 2016, and began in April 2017.

Table 3: Comparison of nurse staffing, Monday to Friday⁷

Specialty	8am to 4pm	4pm to 9pm
Acute team	2 NP, 1 ANP	1 NP, 1 ANP
Hepatobiliary	2 NP, 1 ANP	1 NP
Colorectal	2 NP, 1 ANP	1 NP
Urology	2 NP, 1 ANP	1 NP (shared with vascular)
Upper GI	1 NP, 1 ANP	1 NP (shared with acute team)
ENT/MAX FAX	2 NP	1 NP
Total	11 NP, 5 ANP	6 NP, 1 ANP

New roles

UHS introduced new roles to implement seven day services (see Table 4). It created them to cover gaps in the service, provide administrative support to clinicians and increase the rate of discharge. Since introducing these new clerical and admin roles, the trust halved the average admission-to-assessment time (from two hours to one hour) and reduced average length of stay from 20 to 16 hours in its acute medical unit.

⁷ NP: nurse practitioner; ANP: advanced nurse practitioner.

Table 4: Seven-day service roles

	Medical assistant	Doctors' administrators	Acute care fellows
Introduced	2011	2014	2014
Role	Integrated clinical and admin support	Administration and medical housekeeping	Senior registrars (gastroenterology/ cardiology/respiratory/ endocrinology)
Tasks	<ul style="list-style-type: none"> Monitoring Basic clinical tasks Chasing results Begin medical records Ward round scribing 	<ul style="list-style-type: none"> Documentation of initial reviews and electronic discharge summaries CQUIN data completion Pharmacy TTOs 	<ul style="list-style-type: none"> Out-of-hours (OOH) leadership Clinical reviews Supervision of juniors
Hours	24/7	8am to 6pm, 7 days a week	4pm to midnight, weekdays 4pm to 4am, weekend
Staff	2 staff during the week, 1 staff at the weekends	2 staff during the week, 1 staff at the weekends	1 or 2 staff at all times
Problem?	ANPs and junior doctors performing basic clinical and admin tasks	<ul style="list-style-type: none"> Delays between decision and discharge up to 7 hours HMRs take 30 to 40 minutes 	Gaps in senior clinical OOH and weekend workforce
Service benefit	<ul style="list-style-type: none"> Free up medical team Increased discharge rate 	<ul style="list-style-type: none"> Increase in direct discharges from AMU Reduced length of stay AMU admission-to-assessment times halved 	<ul style="list-style-type: none"> Reduced overflow of routine work to OOH and weekends Increased discharge rate Timely patient reviews

Support services

The trust incrementally increased its pharmacy services. Over six years from 2010, a provision-only service on a Saturday was expanded to ward-based services over the weekend and extended out of hours to support medical and discharge teams.

Currently the trust has 24/7 electronic prescribing and pharmacist advice and supply services, with technical and surgical service teams from 9am to 1pm and discharge teams from 1pm to 5pm every day. Extending pharmacy hours at weekends has seen a 12% rise in items dispensed and a 59% rise in the average number of discharges dispensed at weekends.⁸

The pharmacy team is developing a staff model and IT infrastructure to ensure current service provision is sustainable and meets national guidelines. The next step is implementing electronic prescribing and medicines administration systems (EPMA), which identify high risk patients and an optimal staff skill mix.

The radiology department has taken a similar route to redesigning services. Since 2013, by introducing a 24/7 interventional radiology rota, consultant cover has expanded to include neuroradiology, musculoskeletal services and general sessions at the weekend. Previously consultant cover was all on-call from home. During this time, the trust has observed a 90% increase in unscheduled CT and MRI scans at the weekend.

Therapy services

UHS considers therapy to be as important as surgery and medicine in providing an efficient and safe weekend service. Evidence suggests that for every day an elderly person is in hospital they lose 5% of their muscle mass, which affects their speed of recovery and their mobility.⁹ Weekend therapy services have been designed to reduce frail patients' length of stay to prevent such adverse impact.

Before 2007 community hospitals hosted occupational therapy services, and the trust provided physiotherapy with basic weekend cover. In 2007, occupational therapy was brought into the acute hospital and a nine-year process begun to develop a 365-day service. Detailed reviews of each post and service, followed by a

⁸ University Hospital Southampton NHS Foundation Trust: *Developing 7 day services: the pharmacy journey.*

⁹ National Audit Office, May 2016: *Discharging older patients from hospital*

www.nao.org.uk/wp-content/uploads/2015/12/Discharging-older-patients-from-hospital.pdf

staff consultation led to additional investment. Currently 29.5 whole-time equivalent (WTE) occupational therapists and physiotherapists work weekends across the neurosciences, musculoskeletal, paediatrics, medical, cardiac, cancer, surgery, and intensive care teams.

Enablers

The trust identified these factors as crucial for implementing seven day hospital services:

Critical mass: The trust benefited from having sufficient scale (both staff and patient population) to achieve economies of scale and create appropriate workforce rotas. For example, it has approximately 700 consultants who provide care for about 90% of its population on the main sites.

Innovative staffing: Developing clear job plans for all staff was essential to success. As part of detailed workforce reviews in 2014, the trust established job plans to ensure an appropriate staff mix over 24 hours, and created several admin roles to support this.

Culture: Each department is given autonomy and flexibility to develop its own programme. Although this meant implementation was staggered, it reduced the impact on staff and ensured programmes were fully scoped before they started.

IT: IT systems were developed to support the overall programme, which improved patient care, particularly by supporting staff in handovers between shifts. The two major live systems are the Doctors' Worklist and the Tracked Task Management System, which enabled workloads and patterns to be monitored to create efficient rotas, identify high risk patients and ensure effective prescribing.

Funding: The service is mainly funded through the national tariff. The Sustainability and Transformation Fund is its only other significant source of funding.

Detailed reviews of patient pathways and staff rostering enabled each department to develop business cases for investment and the finance team to adjust budgets where these have been approved.

Challenges

The trust identified several challenges in implementing a seven day hospital service.

Discharging: The trust does not own the entire patient pathway, so reductions in length of stay and bed days are limited by its ability to discharge into the community and social care. This particularly affects weekends, when the number of discharge co-ordinators drops significantly.

Recruitment and retention: The nature of the trust's weekend service is that skilled staff must work outside their specialist areas at weekends to ensure appropriate skill mix. As a result, retaining staff has been a challenge in some departments.

Resistance to change: In general the trust has embraced the need for seven day services. However, after implementing the Doctors' Worklist and job planning, it identified roles and tasks that different or more junior staff members can do. Obtaining divisional management support for change where some risk is transferred to the decision-maker can lead to resistance.

Financial benefits

There has been a significant increase in elective operations on a Monday (see Figure 1). In 2016/17, UHS growth was 11% across the week as opposed to a national average of 3%. The estimated marginal gain of providing elective care above the national average is £1.5 million (see Table 5).

UHS estimates it loses £1 million from cancelled operations and outsources £10 million of elective care every year. In 2017/18, with increasing rates of weekend discharge and reduced lengths of stay, the trust has an opportunity to provide these services, which will help to improve its financial position (see Table 5).

Table 5: Maximum financial benefits per year

Type/description	£
Estimated:	
Elective care growth – marginal benefit ¹⁰	1,529,000
Outsourced elective care – marginal benefit ¹¹	1,500,000
Non-elective length of stay reductions – cost saving ¹²	544,000
Maximum financial benefit	3,573,000

Costs

The trust estimates a recurrent cost of implementing seven day hospital services at about £3.7 million (0.6% of its £641 million patient income in 2016/17¹³). Most costs (98%) are driven by staffing. Investment decisions have been based on the financial and non-financial benefits of extending the working week rather than building a business case solely around seven day hospital services.

In the last five years, the trust invested significantly in consultants, pharmacists, therapists and nurses. UHS also developed innovative staffing solutions. For example, ward clerks and medical assistants have taken on admin tasks, which has enabled more efficient use of clinical skills across the seven day service. The trust also introduced the acute care fellows programme for qualified medical PhD students.

Winter resilience costs (£1.45 million) have been the most significant cost incurred by UHS. The trust invested in additional out-of-hours clinical staff to improve decision-making and reduce length of stay during peak periods.

¹⁰ Increase in elective care between 2015/16 and 2016/17 above national average, multiplied by estimated marginal gain of providing elective care (15%).

¹¹ Elective care valued at £10 million outsourced to the private sector, multiplied by estimated marginal gain of providing elective care (15%).

¹² Calculated as the percentage change in bed days per spell between 2014/15 and 2016/17 multiplied by the cost of an excess bed days with minimal treatment costs (£306 per day). Assumed that 25% of cost savings are due to the implementation of seven day hospital services. Gov.uk: *NHS reference costs 2015 to 2016* www.gov.uk/government/publications/nhs-reference-costs-2015-to-2016

¹³ University Hospital Southampton NHS Foundation Trust: *Annual report and accounts for 2016/17* www.uhs.nhs.uk/Media/SUHTInternet/AboutUs/AnnualReportsStrategiesandPlans/20162017/Annual-report-201617.pdf

In addition to the costs captured in Table 6, as the trust expands its service to include Saturday elective work in eight to 12 theatres it expects to incur additional costs through discretionary payments to consultants (where job plans do not already contain these).¹⁴

In 2017/18, the trust will also incur recurrent costs of £134,000 to expand the surgical nursing out-of-hours team (by 2.32 whole-time equivalents) and to comply with all seven day hospital services clinical standards.

Table 6: Costs

Type/description	Cost ¹⁵
Staff:	
Ward clerks	50,000
Nursing	120,000
ED consultants weekends	100,000
Therapy staff	100,000
Pharmacy staff	116,000
Acute care fellows	268,000
Acute medical unit staff	193,000
Tech support on weekends	30,000
Overnight bed costs (£50,000 – non-staff)	252,000
Paediatric surgery	449,000
Radiology staff	315,000
Stroke staff	150,000
Winter resilience	1,450,000
Integrated discharge	61,000
Total	3,654,000

¹⁴ Elective care is not required at weekends to meet seven day clinical priority standards.

¹⁵ This is a best estimate of the costs of providing seven day hospital services. There are benefits to the organisation in addition to providing seven day hospital services.

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