



**Essential Action 2:  
Balancing Capacity with Demand  
Case Study – Dumfries and  
Galloway Royal Infirmary**

# **NHS Dumfries and Galloway Case Study: Balancing Capacity with Demand at Dumfries and Galloway Royal Infirmary**



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## 6 Essential Actions to Improve Unscheduled Care

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# Balancing Capacity with Demand at Dumfries and Galloway Royal Infirmary

**A large rise in the number of visitors to the Emergency Department prompted Dumfries and Galloway Royal Infirmary to undertake an urgent review of patient flow. The hospital's improvement team decided to implement Daily Dynamic Discharge<sup>1</sup> on one ward after being inspired by a workshop at a National Unscheduled Care event. It proved such a success that the model has now been implemented across the hospital and is being rolled out to the community. This is their story...**

Winter 2015/16 proved particularly tough for Dumfries and Galloway Royal Infirmary. Between 1 November 2015 and 28 February 2016, visitors to the Emergency Department rose by 3.2%, compared to the same period the previous year. Over

the same period, medical admissions from the Emergency Department went up by 30% on the previous year.

In May 2016, the hospital carried out a day of care survey<sup>2</sup> which revealed that more than a fifth of patients (22%) were in hospital unnecessarily. There was clearly an urgent need to ensure that only patients with a clinical reason to be there were occupying a hospital bed.

**“The Daily Dynamic Discharge approach promotes proactive patient management for today and supports staff to prepare for tomorrow.” Julie White, Chief Operating Officer**

**Improving Patient Flow**  
Dumfries and Galloway Royal Infirmary's plans to move to new purpose-built premises with

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<sup>1</sup> <http://www.gov.scot/Publications/2016/06/5432>

<sup>2</sup> [http://www.qihub.scot.nhs.uk/media/950950/dayofcare\\_ed.pdf](http://www.qihub.scot.nhs.uk/media/950950/dayofcare_ed.pdf)

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single occupancy rooms by December 2017 meant it needed to address its patient flow challenges as a matter of priority. New, more effective ways of working needed to be implemented and embedded before the move took place.

The improvement team at Dumfries and Galloway attended a National Unscheduled Care event where they were introduced to the Daily Dynamic Discharge model, developed by the 6 Essential Actions to Improve Unscheduled Care Programme. Members of the team were so impressed by the model that they began planning how to implement it whilst travelling home from the event.

Project Manager, Patsy Pattie said: **“We believed that Daily Dynamic Discharge would provide a framework**

**for implementing robust processes. It would enable us to improve patient care by making sure that patients were in the most appropriate setting for their medical condition. By improving the flow of patients through the hospital and eliminating boarding, we would be better equipped to cope during busy periods. We were also keen to ease pressure on staff by smoothing out weekly peaks and troughs in admissions and discharges.”**

**Support from the Top**  
Julie White, Chief Operating Officer explained why the hospital believed Daily Dynamic Discharge would help it to overcome its patient flow challenges:

**“The Daily Dynamic Discharge approach promotes proactive patient management for today and**

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**supports staff to prepare for tomorrow. It increases understanding about our current position with regard to discharge and clearly demonstrates the need to create capacity at key points throughout the day. This is aligned to The Royal College of Physicians’ acute medical care objective “the right person, in the right setting – first time”. Many staff groups have an important part to play in the planning of a safe discharge of patients and Daily Dynamic Discharge enhances our current processes by promoting a multidisciplinary team approach, with teams working collaboratively and more robustly.”**

Daily Dynamic Discharge was added to the agenda of the next Unscheduled Care Group, which is a group of local Emergency Department clinicians, a clinical lead for medicine, nurse managers, capacity managers, an out of hours manager, social workers, pharmacists, Allied Health Professionals, a representative from Short Term Augmented Re-ablement Services (STARS), health intelligence analysts, Information Services, improvement lead for the Board and a project manager.

### **Establishing a Baseline**

Dumfries and Galloway Royal Infirmary began by establishing a baseline, using the 6 Essential Actions Basic Building Blocks methodology.



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### The Basic Building Blocks Methodology

The Basic Building Blocks methodology is a systematic approach to the demand and capacity analysis of existing patient pathways. By using this methodology sites will gain:

- ✦ Detailed understanding of the existing emergency patient pathways
- ✦ Local clinical team engagement with the creation, review and improvement of their stage within the patient journey
- ✦ Meaningful data which improves understanding of demand at each stage of the patient pathway, and utilising knowledge of demand to support realistic capacity planning to create a balanced system and improve the quality of care and outcomes for our patients
- ✦ Improved understanding of the cause-and-effect relationships in the system and help managers identify the numbers associated with a 'functioning system'

To establish a baseline, Dumfries and Galloway Royal Infirmary undertook an analysis of the medical pathway using the previous year's data. The aim was to identify if capacity met demand in terms of numbers per day, per week and by hour of day.

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It revealed that, although the hospital was reasonably balanced each week, significant imbalances occurred on specific days, with most discharges happening on Fridays and very few at weekends.

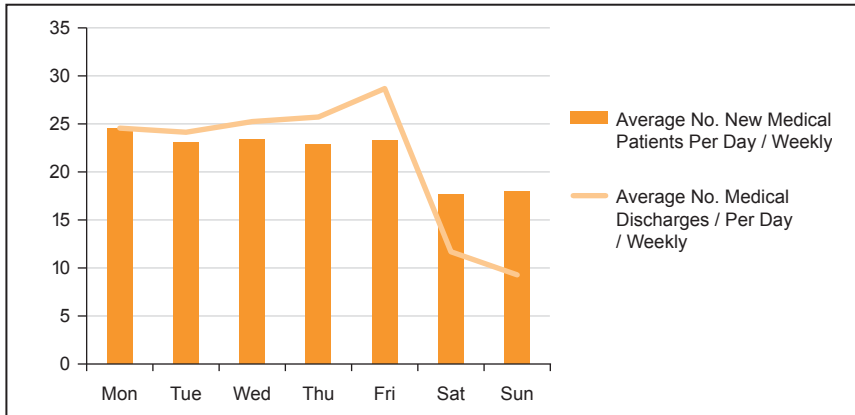
### Figure 1:

*Dumfries and Galloway Royal Infirmary Medical Pathway Average Weekly Demand and Capacity*

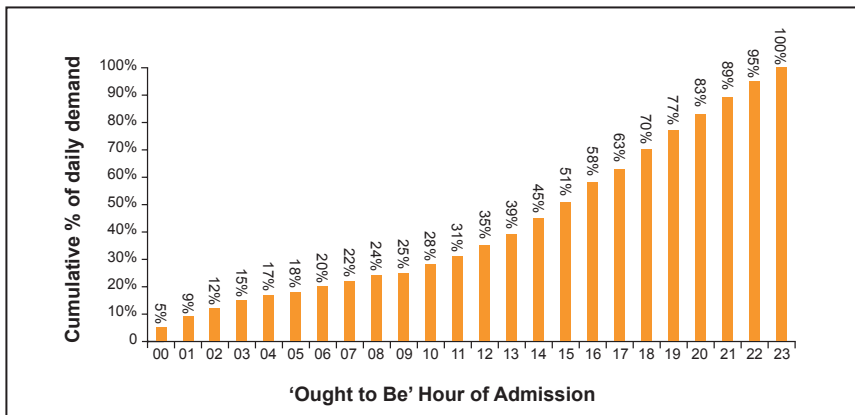
Average Number of New Medical Admissions Per Week	152.8	Demand
Average Number of Medical Discharges Per Week	149.2	Capacity (by discharging)
Average Number of Medical Patients Boarded Per Week	10.5	Capacity (by boarding)

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**Figure 2:** Dumfries and Galloway Royal Infirmary Weekly Balance of Demand and Capacity by Day of Week



**Figure 3:** Dumfries and Galloway Royal Infirmary Cumulative Percentage Demand Profile



The data confirmed that the hospital's discharges were not keeping up with the demand for admission through the day. Figure 3 shows that Dumfries and Galloway required 39% of its capacity before noon, however only 8% of discharges were taking place pre-noon.

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It was clear that the hospital needed to create capacity earlier in the day by discharging sooner if it was to align capacity with demand. Health Intelligence Analyst for Dumfries and Galloway Royal Infirmary, Bill Mitchell said:

**“The data has always been readily available via the dashboard, but seeing it in front of them in black and white really brought home to staff the urgent need for change.”**

### **Selecting the Exemplar Ward**

Nurse Managers, Marian McDonald and Jackie Nicholson and Assistant General Manager, Carole Morton met to discuss which acute medical ward should be chosen as the exemplar ward for Daily Dynamic Discharge.

Project Manager, Patsy Pattie said:

**“We chose Ward 10, a medical ward with a mix of specialties (including Rheumatology, Infectious Diseases, Gastroenterology and Haematology) because its complexity made it an ideal exemplar ward. The Senior Charge Nurse was very motivated and improvement-focused, having already introduced new ways of working to prepare for the move to the new hospital. We began implementing Daily Dynamic Discharge on this ward in September 2016.”**

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(Left to right) Dr Neil Evans, GPST – Alison Banford, Physiotherapist – Dr Rashed Bubakar, SD in Haematology – Lorna Henderson, Staff Nurse – Lauren Wismach, Staff Nurse – Jackie Nicholson, Nurse Manager – Vicki Nicoll, SCN – Dr Manjul Medhi, Locum Specialty Doctor in Infectious Diseases – Dr Avi Chowdhury, FY1 – Dr Andrew McCallum, CT3 Medicine – Dr William Beresford, FY2

### Key to Acronyms:

GPST – General Practice Specialty Trainee  
SD – Specialty Doctor  
SCN – Senior Charge Nurse

FY1 – Foundation Doctor Year 1  
FY2 – Foundation Doctor Year 2  
CT3 – Core Trainee Year 3

The hospital's Health Intelligence Analyst produced an activity profile for the ward focussing on the daily admissions and discharges across the week. In common with the rest of the hospital, the largest number of discharges from Ward 10 occurred on Fridays. The main reason

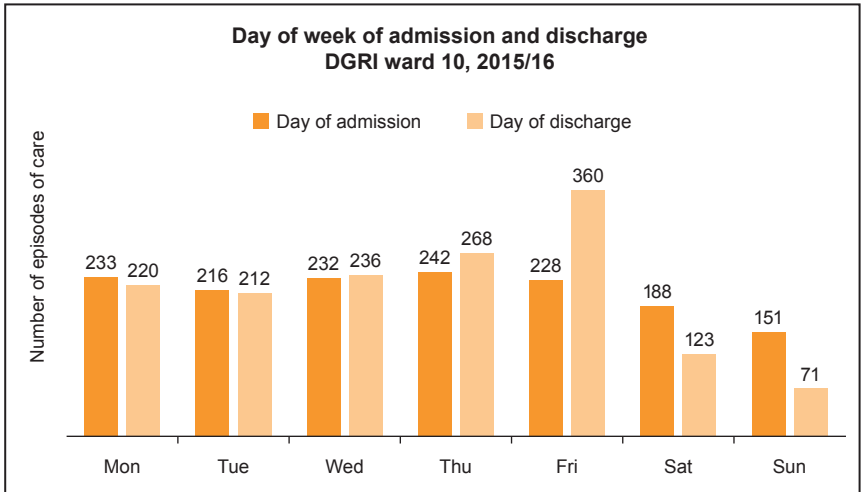
for this was that the weekly ward multidisciplinary team meetings took place on Thursdays. Actions from these meetings were addressed which resulted in patients being ready for discharge on Fridays.

**“The data has always been readily available via the dashboard, but seeing it in front of them in black and white really brought home to staff the urgent need for change.”**  
Bill Mitchell, Health Intelligence Analyst

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**Figure 4:**  
*Ward 10, Admission and Discharge Numbers By Day of Week*

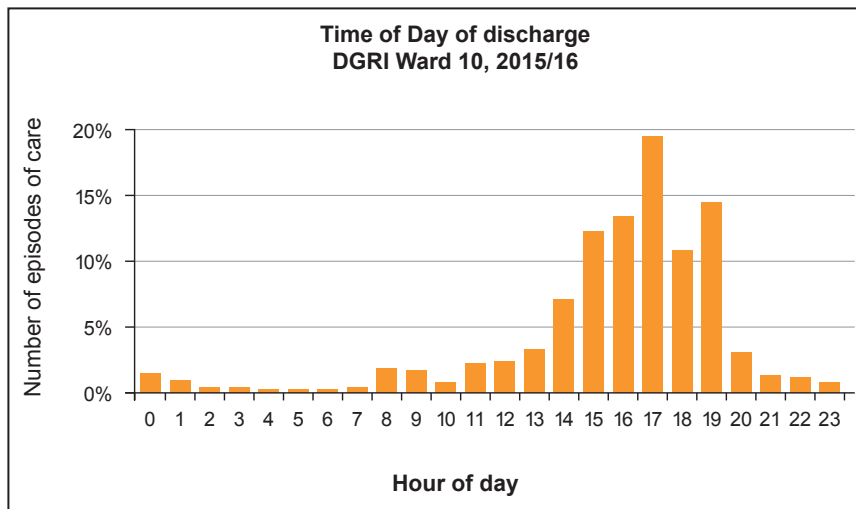


The data showed that demand outstripped capacity on four days per week, with the site relying on the additional Friday capacity to make it through the weekend.

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**Figure 5:**

*Ward 10, Hourly Discharge Profile*



The majority of Ward 10 discharges took place in the afternoon and early evening, with a peak of 71% between 3pm and 8pm.

### Engaging Staff

The Project Manager, Patsy Pattie and Senior Charge Nurse, Vicki Nicoll met in August to discuss the plan for Daily Dynamic Discharge. Subsequently, all staff were invited to a meeting, as Vicki explained:

**“Staff were invited to share their frustrations and challenges around admissions and discharges and to provide feedback on the Daily Dynamic Discharge plan. They spoke about high levels of admissions and discharges late in the day and on Fridays. We showed them the data confirming this. There was recognition that there was work to be done which brought the multidisciplinary team together with a shared sense of purpose.”**

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Staff who were unable to attend the initial meeting were given the opportunity to share their views so that everyone felt included. There was a degree of resistance and scepticism from some staff who believed the new approach would increase their workload. The team met with these people individually and invited them to give the process four weeks, after which it would be evaluated to see if it had made a difference. Everyone agreed with this approach.

### **Implementing Change**

The improvement team worked closely with the exemplar ward throughout the implementation process. Vicki Nicoll was named as Daily Dynamic Discharge ward champion and the team supported her to promote the introduction of the Daily Dynamic Discharge approach to colleagues. The improvement team led the Daily Dynamic Discharge huddle for the first few days, gradually handing over to the staff on the ward.



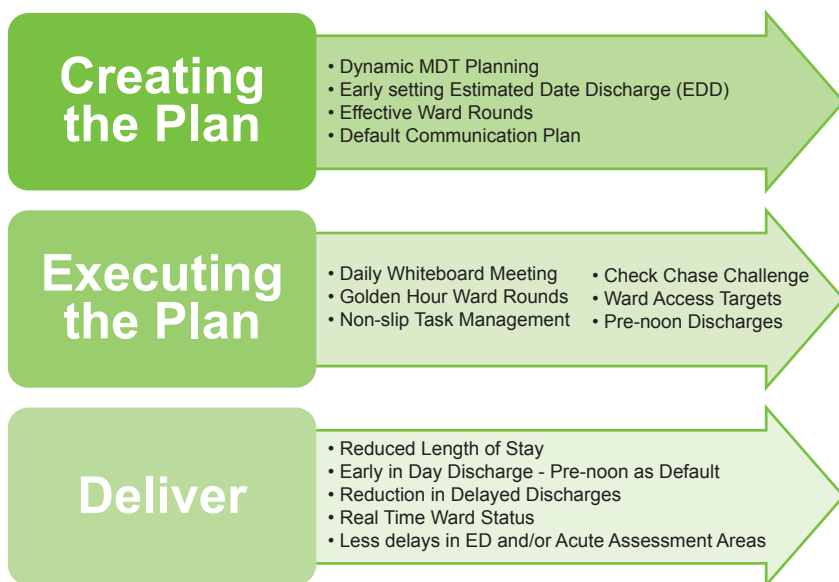
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### The Daily Dynamic Discharge Approach

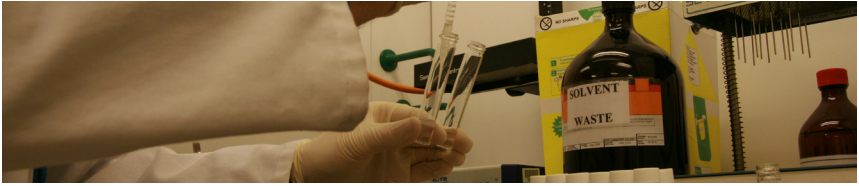
The Daily Dynamic Discharge approach improves the timeliness, safety and quality of all patient journeys. It helps the multidisciplinary team prioritise and plan in a way that is best for the patient in the bed and the patient in the queue. It helps tackle some of the human elements of 'manmade' delay.

**Figure 6a:**

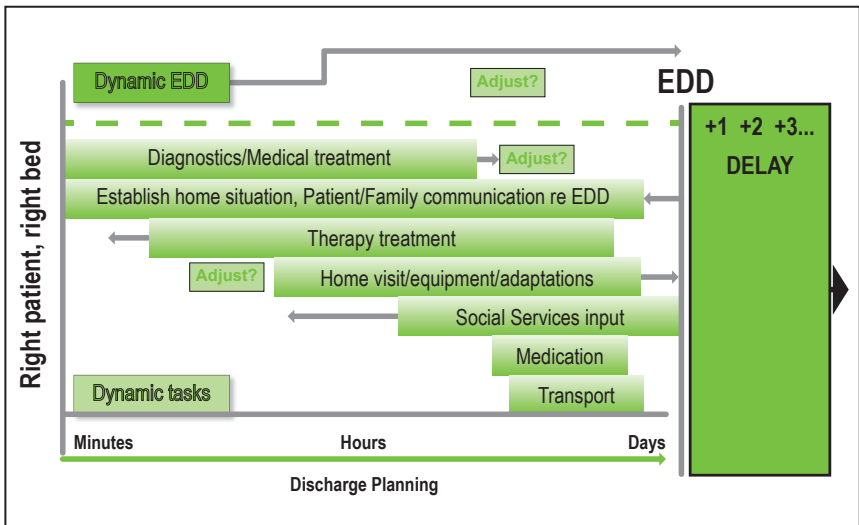
*Key Elements of the Daily Dynamic Discharge Approach*



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**Figure 6b:** An Example Dynamic Discharge Plan



The elements of the Daily Dynamic Discharge approach implemented by Dumfries and Galloway included the Daily Whiteboard Meeting, early Estimated Date of Discharge (EDD) setting, Golden Hour Ward Rounds and Check Chase and Challenge using the Task Management Sheet.

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The multidisciplinary team meeting took significantly less time after implementation – 45 minutes in total – and pharmacy reported that prescriptions were being written up in advance of discharge.

### Impact

The hospital measured quantitative and qualitative impacts on Ward 10 four weeks after it introduced Daily Dynamic Discharge. This was fed back to the team so they could see the difference their hard work was making.

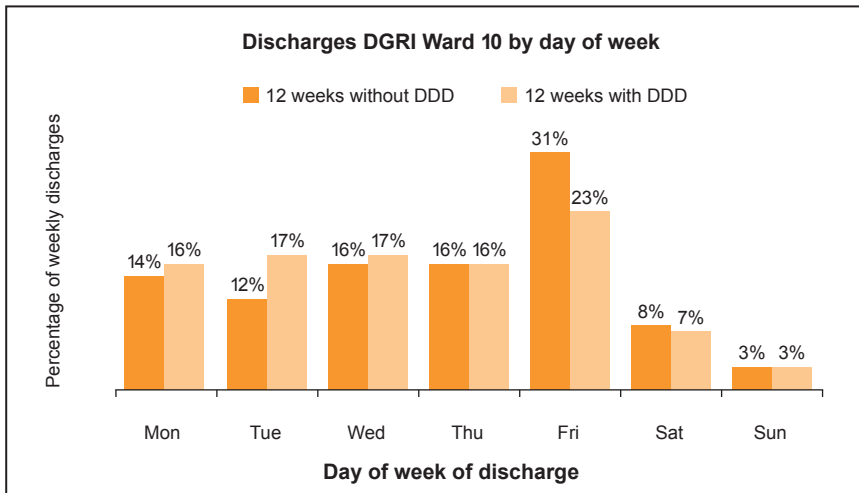
Further data was then generated after 12 weeks. This data compared the 12 weeks prior to implementation with the similar 12 weeks the previous year.

It revealed a more even distribution of discharges and admissions, with less of a peak on Fridays.

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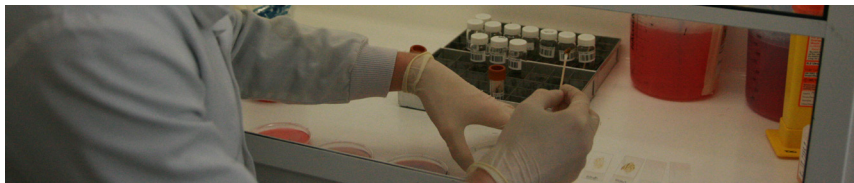


**Figure 7:** Ward 10 Discharges Pre and Post Change to Daily Dynamic Discharge (DDD)

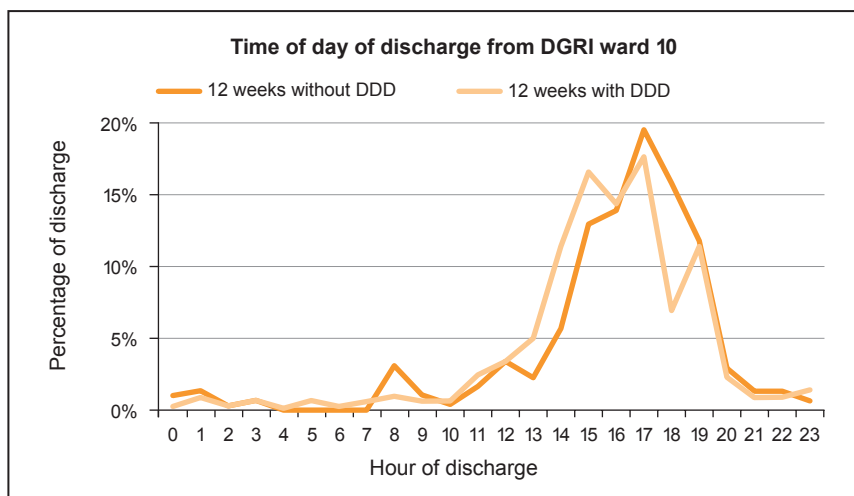


The average number of weekly discharges increased from 26.5 to 30.2, an increase of 3.7 discharges per week. Average length of stay dropped from 6.8 days to 6.2 days, a saving of 0.5 days.

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**Figure 8:** Dumfries and Galloway Royal Infirmary (DGRI) Ward 10 Hourly Discharge Profile Pre and Post Daily Dynamic Discharge (DDD)



More discharges were taking place earlier in the day. The median discharge time was 32 minutes earlier once Daily Dynamic Discharge had been implemented. Previously, a third (33%) of patients were discharged before 4pm. After implementation, this rose to 44%.

The multidisciplinary team meeting took significantly less time after implementation – 45 minutes in total – and pharmacy reported that prescriptions were being written up in advance of discharge.

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Staff said they felt more in control. The fact that patients were being discharged earlier in the day meant that patients could be admitted in a timely manner from the Acute Medical Unit. Patient flow was starting to improve.

### **What Staff Say**

Staff really appreciated the structure and order that Daily Dynamic Discharge brought to the ward. Senior Charge Nurse, Vicki Nicoll said:

**“Daily Dynamic Discharge has taken away the thought that nurses should do everything when, in fact, it is everyone’s job to work together to ensure that the patient is on the right pathway.”**

Consultant in Infectious Diseases, Dr Gwyneth Jones commented:

**“I have saved 40 minutes from a weekly multidisciplinary team meeting which often stalled around delays/inappropriate Occupational Therapist referrals. I feel I have had fewer boarders than previous years despite more inpatients.”**

Pharmacist,

Laura Graham added:

**“Now the majority of prescriptions are prepared in advance or typed in the morning, then prioritised by pharmacy according to transport needs. This means that we get lunch on time, even when discharge numbers hit double digits. Go team, a worthy 15 minutes of my day. Yay!”**

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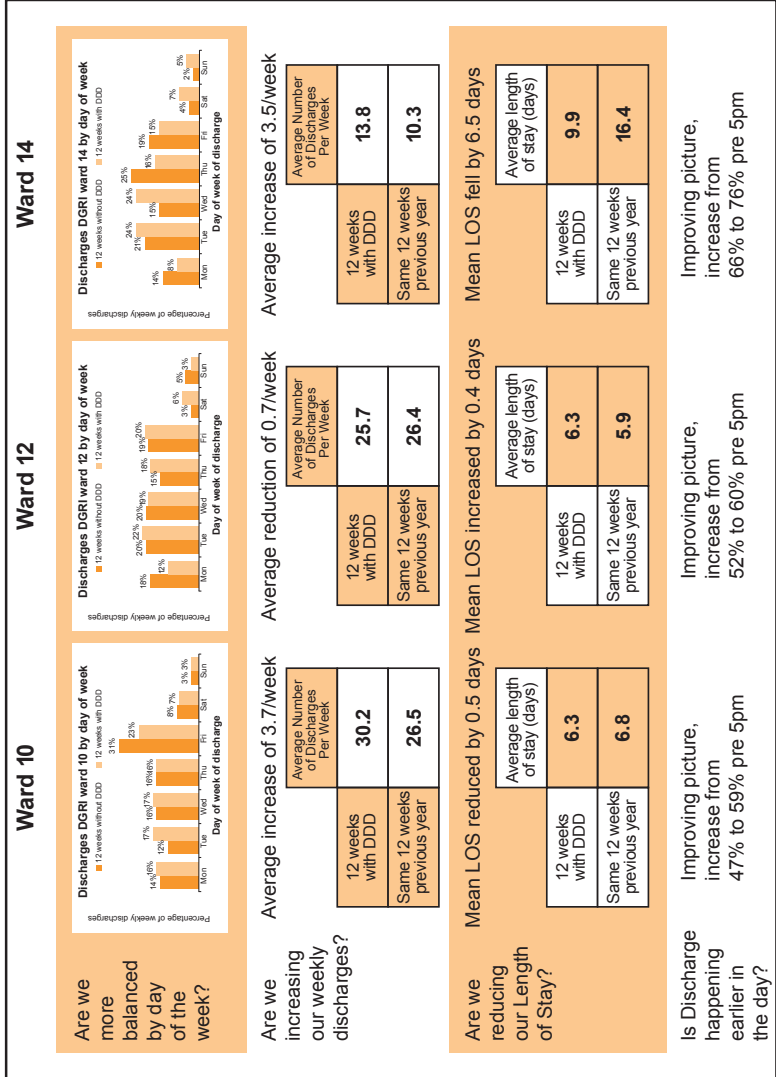


### **Rolling Out Daily Dynamic Discharge Across the Hospital**

From September to December 2016, Daily Dynamic Discharge was rolled out to most acute medical and surgical wards in the hospital. This rapid roll-out was achieved by implementing one ward each week up to the middle of December. Daily Dynamic Discharge was discussed at the Senior Charge Nurses' monthly meetings and the success of the exemplar ward was shared to build engagement and momentum.

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**Figure 9: Monitoring Outcomes**





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The roll-out programme is still underway, however the hospital has undertaken some 12 week post-Daily Dynamic Discharge outcome measurements and compared them to the same 12-week period the previous year. The results are encouraging, particularly in view of the fact that it relates to a challenging time of year.

They show more balanced discharge profiles and earlier in the day discharging across the week in all wards. Increased weekly discharges and a reduction in length of stay is also being achieved.

There was a spike in medical/GP referrals and admissions between 1 November 2016 and 28 February 2017, compared to the previous winter period. This resulted in a 30% increase in admissions for this patient group. This was particularly challenging for Ward 12 which comprises respiratory and stroke specialties. It experienced a rise in admissions, including Respiratory Syncytial Virus (RSV) and flu positive patients being admitted, which impacted performance.

In spite of this additional demand, overall the hospital coped well, maintaining a performance of 91.9% against the four hour target.

Project Manager,  
Patsy Pattie said:

**“In previous winters we have regularly opened our Day Surgery unit to cope with the extra demand and to assist with patient flow. This year we didn’t have to open the unit throughout the festive period, and in fact have only had to open it on a handful of occasions. Winter is always challenging and some may question if this was the right time to introduce such a bold change. I look at it from a different perspective. With such a significant rise in admissions and acuity of patients, if we had not implemented Daily Dynamic Discharge what would have happened?”**

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### Next Steps

Daily Dynamic Discharge huddles take place every morning across each ward of Dumfries and Galloway Royal Infirmary, with a follow-up handover meeting in the afternoon. Senior nurses lead the huddles and they are mentoring junior nurses to become more confident in the process so that they can take it forward. Further coaching techniques are being planned as part of future staff development. A member of the management team attends wards daily to support the team and, in particular, to establish that Check Chase Challenge is being implemented.

**“This is a great initiative...patients rather than bed management; makes sense doesn't it?”**

Deputy Nurse Director,  
Alice Wilson

### Daily Dynamic Discharge in the Community

The success of the Daily Dynamic Discharge approach in Dumfries and Galloway Royal Infirmary led to growing interest across the community. In November 2016, a test of change began at Annan Community Hospital (18 beds), 16 miles east of Dumfries. Annan used the same preparation and pre-implementation process as Dumfries and Galloway. There are plans to extend Daily Dynamic Discharge to the smaller acute Galloway Community Hospital (46 beds).

### Key Learning Points

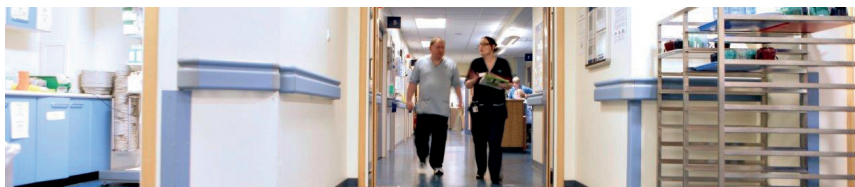
- ✧ Dumfries and Galloway Royal Infirmary spread the word about Daily Dynamic Discharge using posters, questionnaires, opportunistic conversations with team members and site huddles. This helped to build momentum across its wards – if Ward 10 can do it, why can't we?
- ✧ Small changes can have a big cumulative effect.
- ✧ It is important to choose the exemplar ward carefully – a highly motivated ward champion is essential.
- ✧ Each ward has its Daily Dynamic Discharge huddle at a time to suit their circumstances, which makes it easier for specialists to attend more than one daily ward huddle.
- ✧ A standardised approach means that, as staff rotate around wards, they encounter the same Daily Dynamic Discharge process.
- ✧ Check Chase Challenge also helps sustain successful implementation.
- ✧ The hospital encourages staff to avoid inputting meaningless Estimated Dates of Discharge (EDDs). However, if there is no EDD, staff need to be clear that the patient is still under investigation and that an accurate EDD will be decided soon (this should be within first 24 hours).
- ✧ It is important for staff to recognise the impact of delayed discharges and admissions on other professions/services, such as pharmacy.

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### Acknowledgements

We would like to thank everyone who has contributed to this case study. By openly sharing your experiences, your challenges and your learning, you are helping to spread best practice and drive system-wide improvement.

These stories serve to inspire others and celebrate the hard work of individuals who are committed to making things better for patients. In particular, we would like to acknowledge:

- Project Manager, Patsy Pattie
- Chief Operating Officer, Julie White
- Health Intelligence Analyst, Bill Mitchell
- Senior Charge Nurse, Vicki Nicoll and all staff at the Dumfries and Galloway Royal Infirmary

- Case study writer, Kate Philbin and the National Unscheduled Care Team
- Calum Murray, Medical Illustrator, Dumfries and Galloway Royal Infirmary
- Deputy Nurse Director, Alice Wilson
- Consultant in Infectious Diseases, Dr Gwyneth Jones
- Pharmacist, Laura Graham

If you are inspired to share your improvement story, we would love to hear from you. Please get in touch at [UnscheduledCareTeam@gov.scot](mailto:UnscheduledCareTeam@gov.scot)

## 6 Essential Actions to Improve Unscheduled Care

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**Deliver:** safe, person-centred, effective care to every patient, every time, without waits, delays and duplication

**In order to:** improve the experience of patients and staff

## The 6 Essential Actions:



### Clinically Focused and Empowered Management

The operation of basic hospital and facilities management, visible leadership and ownership through managerial, nursing and medical triumvirate team, creation of clear escalation policies and improved communication supported by safety and flow huddles.



### Capacity and Patient Flow Realignment

Establishing and then utilising appropriate performance management and trend data to ensure that the correct resources are applied at the right time, right place and in the right format. This will include Basic Building Blocks, Bed Management Toolkit, Workforce Capacity Toolkit and alignment with Guided Patient Flow Analysis.



### Patient Rather Than Bed Management

Managing the patient journey requires a coordinated multi-disciplinary approach to care management, dynamic discharge processes: access to diagnostics, appropriate assessment, alignment of medical and therapeutic care; home when ready with appropriate medication and transport arrangements, discharge in the morning, criteria led discharge, transfers of care to GP.



### Medical and Surgical Processes Arranged for Optimal Care

Designed to pull patients from ED through assessment/receiving units, provide access to assessment and clinical intervention, prompt transfer to specialist care in appropriate place designed to give care without delay, move to downstream specialty wards without delay and discharge when ready, utilising criteria-led discharge where appropriate.



### 7 Day Services

The priority is to reduce evening, weekday and weekend variation in access to assessment, diagnostics and support services focussed on where and when this is required to: avoid admission where possible, optimise in-patient care pathway, reduce length of stay and improve weekend and early in the day discharges safely.



### Ensuring Patients are Cared for in Their Own Homes

Considers pathways to support avoiding attendance, and how someone who has an unscheduled care episode can be optimally assessed without need for full admission, if required they will be cared for and discharged to their own home as soon as ready. Anticipatory Care Plans, redirection to appropriate health care practitioner and shift from emergency to urgent care is the focus for sustainability.



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