

# Establishing an acute ambulatory care service

Adoption of the ambulatory model, along with integration of point of care testing (POCT) and evidence-based lean service redesign, has allowed the James Paget University Hospital to provide emergency medical patients with efficient, high-quality care.

There is increasing evidence that ambulatory emergency care (AEC) services can play an instrumental role in reducing the inpatient burden; improving patient management and enhancing patient experience.<sup>1,2</sup> The ethos of AEC is the identification and management of patients with acute medical conditions that should not require overnight admission.<sup>3,4</sup>

The James Paget University Hospital previously utilised a small assessment bay within the acute medical unit to provide limited AEC services, in conjunction with a nurse-led DVT clinic. The existing set-up was not capable of meeting service demand or providing operational benefits. This presented an opportunity to redesign and implement fundamental work process changes to existing patient management streams, resulting in the establishment of an ambulatory care unit (AmbU) with the specific intention of improving patient experience, outcomes and flow.

## Reducing LoS

When beginning the process of redesigning ambulatory care pathways, it was evident that utilising POCT diagnostics could hold the key to significantly reducing the overall patient length of stay (LoS). It is now widely accepted that the reduced specimen

turnaround times provided by POCT can potentially help to reduce the time in which patient clinical review is undertaken; in turn offering: improved patient outcomes, increased patient satisfaction and, importantly, a possible reduction in costs.<sup>5</sup> However, when POCT is provided as a stand-alone solution, it is often unable to generate desired improvements unless accompanied by system process changes, as laboratory test turnaround times may not be the rate-limiting step in a patient management process.<sup>6</sup>

By changing the processes and overall system in which POCT is utilised, new approaches to patient management can be engineered; particularly those focussing on patient-centred care, as integrated POCT devices, such as the *i-STAT*<sup>®</sup> system (providing multiple, traditionally laboratory-associated, tests on a single platform), are well suited to increasing patient involvement in the decision-making process and reducing the patient's perceived sense of waiting.<sup>7,8</sup> Additionally, the majority of current health systems are based upon pathology testing within a centralised laboratory and are not configured to utilise POCT effectively; for this reason, process change and innovation is required to decentralise traditional testing methodologies – aligning service delivery and work-flow to ensure real-time availability of results to affect patient management.<sup>9</sup>

Consequently, James Paget University Hospital formed a working agreement with Abbott Point of Care to provide the



*i-STAT* platform and Emerald CEL-DYN full blood count analyser for an initial three-month pilot; coupled with service redesign expertise provided by the Lean Enterprise Academy (LEA).

The LEA assisted the Trust-based project team in exercises including extensive project planning, stakeholder salience analysis and 'process activity mapping' (PAM) to understand how the current system actually worked; in turn identifying an evidence-based ideal future-state, capable of fulfilling demand and leverage points on which to focus (such as POCT) to catalyse change.<sup>10</sup> Additionally, the team used 'failure mode and effect analysis' (FMEA) to provide evolving process governance; obtaining multiple stakeholder input to identify, quantify, prioritise and resolve potential issues.<sup>11</sup>

By undertaking the redesign of AEC services in this manner, the team was able to define 'value' within the process (reducing LoS) and focus upon what really mattered to achieve this.<sup>11</sup> This meant that process optimisation required close inter-departmental collaboration with the Emergency Department, a conscious breakdown of the traditional emergency floor NHS silo and integration of AEC services into the existing emergency care set-up (A&E and Acute Medical Unit); and so complying with national best practice guidance.<sup>3</sup> Furthermore, this will provide a foundation to meet improvement objectives defined by the Institute of Medicine, stating that all healthcare systems should provide

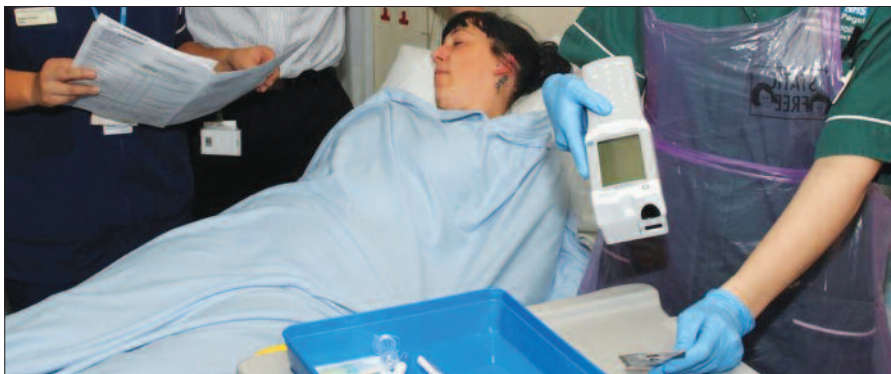


Fig 1. AmbU service delivery at James Paget University Hospital

patient-centred, timely and efficient care in a safe, effective and equitable manner.<sup>12</sup>

Redesigned AEC pathways within the Trust supported the attainment of these objectives through: the use of national guidance to enable early identification of suitable patients, such as those with chest pain, cellulitis or suspected pulmonary emboli,<sup>13</sup> expedited investigations, and appropriate treatment/discharge planning; controlled and defined by condition-specific patient management algorithms and the involvement of senior decision makers (consultant, registrar or nurse practitioner) at the first point of patient clinical contact.<sup>1,14</sup>

Work processes have been specifically designed to integrate the role of nurse practitioners as the key staff group within the unit to provide strong leadership and accurate, early patient assessments.<sup>15</sup>

### New AmbU model

The new AmbU model (currently operational on weekdays only between 08:00 and 18:30, due to staffing constraints) has shown dramatic improvements in patient flow through the AMU, despite an overall 7.61% year-on-year increase in medical admission activity. The process change has reduced the LoS from 1.04 to 0.8 bed days within the AMU, despite only 26.06% of patients (425 of 1631) being managed through AmbU. Mean LoS for this patient cohort has reduced by 40.8% from an established baseline of 250 minutes; with an overall median LoS of 110 minutes. As expected, there has been an 8.22% increase (188 patients) in the number of same-day discharges (zero LoS admissions) in AMU; with an associated decrease of 8.93% in 1, 2 and 3 day LoS patient admissions – equating to 59 saved bed days during the pilot period.

Table 1 shows the patient admission data for the three-month pilot period of the project. As the patients seen in AmbU were previously assimilated into the AMU take, there are no baseline comparable data for these patients. However, over the pilot period, there has been an increase in patients through the unit. This has therefore led to a slight decrease in the overall same-day discharge rate, thought to be, in part, a result of accepting more patients and those with more complex issues. Regardless of this, the median and mean LoS has plateaued, despite the increase in numbers through the unit. Following the success of the pilot, the project team is now looking at further evidence-based expansion and development of services through a permanent, dedicated AmbU area designed to structurally enhance the current process pathway, in partnership with enhanced staffing levels and extended working hours (including

	Month 1	Month 2	Month 3
Total patients	101	143	181
Average patients per day	5.05	6.5	9.05
Mean LoS (minutes)	127	161	150
Median LoS (minutes)	70	120	120
Same-day discharge rate	88.12%	85.31%	81.77%

7-day working and weekday opening until 21:30) – the latter of which has been evidenced to potentially avoid an additional 40 overnight stays per month.

### Conclusions

The overall changes to process and adoption of the ambulatory model,<sup>2</sup> along with integration of POCT and evidence-based lean service redesign, has allowed the James Paget University Hospital to provide emergency medical patients with efficient, high quality care. By increasing both staff and patient engagement, improved operational performance and clinical outcomes are expected.<sup>16</sup>

In turn, this will maximise operational benefits and successfully reduce the LoS for this patient cohort, when combined with safe discharge and appropriate follow-up; underpinned by rapid assessment through senior decision makers at the first point of clinical contact and timely diagnostic results. +

### Authors

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### References

- 1 Ambulatory Delivery Network. Directory of ambulatory emergency care. 3rd Edition. 2012. [www.institute.nhs.uk/ambulatory\\_emergency\\_care/public\\_view\\_of\\_ambulatory\\_emergency\\_care/ambulatory\\_emergency\\_care\\_homepage.html](http://www.institute.nhs.uk/ambulatory_emergency_care/public_view_of_ambulatory_emergency_care/ambulatory_emergency_care_homepage.html) (accessed 18 November 2014).
- 2 Bardsley M *et al.* Is secondary preventive care improving? Observational study of 10-year trends in emergency admissions for conditions amenable to ambulatory care. *BMJ Open* 2013;3:e002007.
- 3 McCallum L *et al.* National ambulatory care survey: current level of adoption and considerations for the future. *Clin Med* 2010;10(6):555–9.
- 4 Ambulatory Emergency Care Network. Ambulatory Emergency Care: a solution to manage emergency demand, improve outcomes and reduce waits. 2012. [www.institute.nhs.uk/ambulatory\\_emergency\\_care/public\\_view\\_of\\_ambulatory\\_emergency\\_care/ambulatory\\_emergency\\_care\\_homepage.html](http://www.institute.nhs.uk/ambulatory_emergency_care/public_view_of_ambulatory_emergency_care/ambulatory_emergency_care_homepage.html) (accessed 19 November 2014).
- 5 Lippa PB *et al.* Point-of-care testing (POCT): Current techniques and future

perspectives. *Trends Analytical Chem* 2011;30(6):887–98.

- 6 Pearson J. Review: Point-of-care testing and clinical governance. *Clin Chem Lab Med* 2006;44(6):765–7.
- 7 DuBois JA. Clinical issues: The role of POCT and rapid testing. *Med Lab Observer* 2013;45(9):18–22.
- 8 Marshall A, Kitson A, Zeitz K. Patients' views of patient-centred care: A phenomenological case study in one surgical unit. *J Adv Nurs* 2012; 68(12):2664–73.
- 9 Jani IV, Peter TF. How point-of-care testing could drive innovation in global health. *N Engl J Med* 2013;368(24):2319–24.
- 10 Baker M, Taylor I, Jones DT. The NHS Bermuda Triangle (and how to escape it). *The Lean Enterprise Academy*;2010.
- 11 de Sousa RVB, Carpinetti LCR. A FMEA-based approach to prioritise waste reduction in lean implementation. *IJORM* 2014;31(4):346–66.
- 12 Institute of Medicine. Shaping the Future for Health. Crossing the Quality Chasm: a new health system for the 21st century. *National Academy Press*. 2001. Washington DC.
- 13 Ala L *et al.* Selecting ambulatory emergency care patients from the medical emergency in-take: the derivation and validation of the Amb score. *Clin Med* 2012;12(5):420–6.
- 14 Royal College of Physicians. Acute Medical Care – the right person, in the right setting – first time. Report of the Acute Medicine Task Force 2007. London. [www.rcplondon.ac.uk/sites/default/files/documents/acute\\_medical\\_care\\_final\\_for\\_web.pdf](http://www.rcplondon.ac.uk/sites/default/files/documents/acute_medical_care_final_for_web.pdf) (accessed 24 November 2014).
- 15 Carter A. The Ambulatory Care Unit at Derriford Hospital. *Clin Med* 2014;14(3):250–4.
- 16 The King's Fund. Leadership and engagement for improvement in the NHS. 2012. [www.kingsfund.org.uk/publications/leadership-engagement-for-improvement-nhs](http://www.kingsfund.org.uk/publications/leadership-engagement-for-improvement-nhs) (accessed 20 November 2014).

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