

# **Title: A novel and revolutionary redesign of emergency general medicine admissions pathway**

## **Category: Service Organisation and Design**

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### **AIM**

From next-day 'post-take' ward-rounds, we have moved to 'hot' consultant-reviews. Can we still afford to waste crucial resources and time in repeating junior-doctor clerking and nursing assessments separately by ED and AMU staff in separate ED and AMU documents?<sup>1</sup>

This revolutionary project will implement, in structure and process, a single assessment and documentation of clinical-presentation once only, instead of performing and documenting patient-reviews twice each by doctors and nurses.

### **METHODS**

ED-referrals between 9 am to 5 pm on pilot (trial) day clerked once-only on single document were reviewed, and compared with conventional double-clerking.

126 case-notes were reviewed. 61 from pilot-day Monday 18<sup>th</sup> June 2012 and 65 case-notes from control-days 11<sup>th</sup> and 25<sup>th</sup> June, both adjoining Mondays to exclude bias from differing weekdays and duty-consultants.

### **RESULTS**

Clear improvement by demonstrating reduction in 'time to acute-medicine-consultant'<sup>2</sup> and 'time to first doctor'. The reduction in variation in 'time to first doctor' also demonstrates quality-improvement by standardisation.

Control charts show favourable special-cause variation during intervention (18 June) which is statistically-significant with 14 consecutive data-points below mean (in red) in figure 1 and reduced variation of data-points in figure 2.

Although relatively small, patient numbers are sufficient for an initial pilot in an iterative Plan-Do-Study-Adjust (PDSA) cycle of quality improvement which uses principles of analytical statistics<sup>3</sup> unlike traditional enumerative statistics. However, to gain even more stakeholder-confidence before full implementation, next bigger PDSA-cycle is planned using electronic-documentation after trust-wide-launch on 30<sup>th</sup> September 2015.

### **CONCLUSION**

This removal of duplicating step in value-chain as per Lean principles<sup>4</sup>, leads to quality improvement<sup>5</sup> and multiple financial savings by improving –

- **Patient-flow** – improved real-time-bed-occupancy and length-of-stay.
- **Clinical effectiveness** – improved 'time to acute medicine consultant review' and human-resource utilisation.
- **Patient-experience** – reducing repetition of potentially unpleasant clinical-assessments by non-decision-makers.
- **Patient-safety** – improving speed of correct diagnosis and management.

### **REFERENCES**

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**Title: ABCDE of Medical Handover- Simple and Safe.**

**Category: Service Organisation and Design**

**Main Author: Nerys Conway**

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## **Introduction**

Poor handover is a cause of avoidable medical errors and puts patients unnecessarily at risk. The Royal College of Physicians, London have created an Acute Care Toolkit defining the standards, processes, methods and recommendations of good handover. [1]

## **Method**

We observed no formal handover was being conducted within our hospital. Handover was informal and in no designated area. We designed an ABCDE pro forma of handover (Figure 1) and organised a room to ensure handover was taking place between the day and night teams. A survey was sent out to junior Doctors (F1 to ST7) and Clinical Site Managers (CSM) to ask questions such as- how safe handover was before and after the formal handover was introduced; how helpful the ABCDE pro forma was; and how we could improve handover.

## **Results**

29 junior Doctors and CSMs responded.

Before changes were implemented, 0% felt handover was very safe and 31.03% felt handover was safe. The main issue was lack of leadership. (Figure 2)

Since formal handover had been introduced 44.44% feel handover is very safe and 55.56% feel handover is safe (100% in total). The current main issue is Doctors trying to handover jobs at the same time (40%). 77.77% feel the ABCDE pro forma of handover is useful. Suggestions for improvement include trying to create bleep-protected (except emergencies) time for handover.

## **Conclusion**

Just a third of Doctors and CSMs were previously satisfied that handover was safe. Booking a room has ensured that all team members know where and when to meet. Simple yet effective measures have clarified that **all** those taking part in handover are satisfied the process is now safe, improving communication and patient safety. The CSMs are now working with ward matrons to educate nurses to bleep in an emergency only during handover.

## **References**

[1] **Royal College of Physicians- Acute Care Toolkit 1 – Handover May 2011**

<https://www.rcplondon.ac.uk/sites/default/files/acute-care-toolkit-1-handover.pdf>

Assessed July 22<sup>nd</sup> 2015

**Title: Acute Frailty Unit within ED reduces inpatient admissions for frail older adults**

**Category: Service Organisation and Design**

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**AIM**

To explore the impact of an Acute Frailty Unit with senior MDT decision making on admission avoidance and the acute care to community interface for frail older people.

**METHOD**

An Acute Frailty Unit pilot commenced at St Thomas' Hospital within the Emergency Department in March 2015. The unit has 6 beds and 2 recliner chairs, with an MDT comprising of Consultant Geriatricians, Specialist Occupational and Physiotherapists, Older Person's Clinical Nurse Specialist and a Registered Mental Health Nurse for Older Adults. Patients are referred directly from A&E Triage / ambulance crews into the unit.

The service operates from 8am-8pm Monday to Friday with Consultant Geriatrician cover from 10am-6pm. Outside of these hours, patients could be placed on the unit under the care of the Emergency Department or medical team and care transferred to the Frailty team the following morning.

The Frailty team recognises that a hospital ward or Emergency Department is not the best place to assess how older people are likely to manage daily living tasks in their own home (The Health Foundation, 2013). The team strives to provide a one-stop Comprehensive Geriatric Assessment with rapid discharge once medically fit, and to utilise our community Rapid Response, hospital at home and social care teams to assess and support with additional daily living tasks in the patient's own home.

**RESULTS**

There was a 6% drop in conversion rate from A&E attendance to admission from the first to second quarter of 2015 (when the unit opened), compared with only a 1% from the first to second quarter of 2014 (the usual seasonal effect). The readmission rate for the Frailty Unit remained the same as that of the inpatient Older Person's wards over this period.

**CONCLUSION**

Expert Frailty MDT input at the front door can reduce hospital admissions without an increasing readmissions.

**Title: Alcohol Detox - A 'cost saving' pathway for the AECU**

**Category: Service Organisation and Design**

**Main Author: Fiona Wisniacki**

**Co-Authors:**

**AIM**

Treating patients with alcohol withdrawal management in acute beds is costly in acute hospital. The aim of this study is to explore whether alcohol withdrawal management within an ambulatory emergency care unit (AECU) is safe and cost saving.

**METHODS**

Subjects were chosen for alcohol withdrawal treatment in AECU according to 'AECU guideline criteria'. Data of patients who attended the AECU was reviewed retrospectively and included length of stay as an in-patient prior to AECU attendance and number of subsequent attendances to the unit. Subsequent ED reattendance for an alcohol related condition was recorded.

**OUTCOMES/RESULTS**

20 patients attended the AECU for alcohol 'detox' within 12 months. The median length of stay in the ED of 17 patients (including CDU stay) prior to AECU attendance was 3 hours 46 mins (range 11 mins to 11 hours 55 mins) and the average number of AECU attendances of these patients was 3. Of these patients 4 ((23.5%) reattended the ED with an alcohol related presentation within 12 months. 3 patients had acute bed admission (average stay 3 days) prior to their AECU attendances and none of these patients reattended with an alcohol related condition. The total number of attendances to the AECU was 60 (average no of attendances = 3). There were no clinical consequences in this cohort of patients. If these had been translated into bed days at £305 per day the equivocal saving would be £18,300.

**CONCLUSION**

Managing alcohol withdrawal on the ACU is cost effective and safe. Unfortunately, community services are unable to accept patients immediately from hospital beds to continue such treatment, due to demand capacity and so in this case, the ACU has 'filled the gap' of service, as well as prevented admission and reduced length of stay in acute medical beds thus leading to a cost saving.

**REFERENCES**

NICE – Alcohol-use disorders: diagnosis, assessment and management of harmful drinking and alcohol dependence CG115

<http://www.nice.org.uk/guidance/cg115/chapter/1-recommendations>

Alcohol Toolkit

<http://www.rcem.ac.uk/Shop-Floor/Clinical%20Guidelines/College%20Guidelines>

**Title: Applying the compassion in practice strategy in the development and the delivery of a new outpatient parenteral antibiotic therapy service (OPAT)**

**Category: Service Organisation and Design**

**Main Author: Dian Huyton**

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**Aim**

There is convincing evidence to support the delivery of intravenous antimicrobials in the community. Benefits include admission avoidance and reduced length of stay(1), cost savings(2) and reductions in health-care acquired infections (2). Compassion in Practice is a three year vision and strategy for nursing, midwifery and health care which recognizes the crucial role that organizations have in patient experience (4). There is no previous data that applies this to the development of a new service in acute medicine. Our aim was to apply this strategy to the development and delivery of a new OPAT service, and measure the impact through short experience surveys.

**Method**

Guidance was written and disseminated to all relevant team members which applied Compassion in Practice to the development and delivery of the OPAT service (picture-1). An MDT evidenced-based guideline was written and disseminated, and training was given where required. OPAT was piloted on the ACU in November-2014 over 3 months. The impact was measured through short patient and staff experience surveys.

**Outcomes/results**

All patients rated the OPAT service and the care and support given by staff as good or excellent and were likely or extremely likely to recommend OPAT to family and friends. All patients considered OPAT as a preferable option to an in-patient stay. A short staff questionnaire demonstrated that all staff members felt informed and involved, and they possessed skills to feel competent. They felt valued by the organisation and were confident to challenge and offer suggestions to improve the service.

**Conclusion**

The compassion in practice strategy has a crucial role in determining the experience of our patients and our service users. Short experience surveys of the OPAT service have not only demonstrated positive patient experience through positive feedback, but the evidence also supports positive staff experience, and a commitment to developing the service further.

**References**

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2. Chapman A. Outpatient parenteral antimicrobial therapy. BMJ 2013;346:f1585.
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**Title: Appropriateness of GP referrals to Medical team**

**Category: Service Organisation and Design**

**Main Author: Parag Gajera**

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**Aim:** Recently it has been noticed that the number of referrals from the community physicians to the medical team is on the increase. It was felt that a percentage of those might not be appropriate or could have been avoided. A study was conducted at the Countess of Chester Hospital to check the appropriateness of the referrals made by GPs to the medical team against agreed criteria.

**Method:** Prospectively 70 referrals from GPs over a period of 1 week were assessed against the appropriateness of referrals criteria. Different clinicians including Consultant, GP and SpR assessed the referred patients against the set criteria. In case of dilemma, the case was discussed with other clinicians to arrive to an appropriate decision. Benefit of doubt was always given to GPs. A purpose designed audit proforma was then filled for each patient and results were analysed.

**Results:** About 43% of the admissions were either inappropriate or could have been avoided. 24% patients were not seen by the GP prior admission. 35% of patients did not have urgent medical problem that required admission. About 37% of the inappropriately referred patients, wrong department was selected.

**Conclusion:** The main causes for inappropriate referrals are thought to be the misunderstanding by some GPs of the purpose of AMU, lack of information of the presence of facilities in the community that can deal with certain types of cases and relative ineffectiveness by the single point of access in directing cases to the appropriate department. Hence a coordinated effort by the COCHT and PCT to inform the GPs of the function of AMU and presence of facilities that help reduce admissions to AMU is needed. In addition, recommendations to strengthen hospital/primary care communications and improving the effectiveness of Single Point of Access(SPA) were suggested.

# **Title: Attaining a 90 minute length of stay - Ambulatory Emergency Care Redesigned**

## **Category: Service Organisation and Design**

**Main Author: Dominic Giles**

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### **Aim**

In response to increasing operational pressures faced by acute medical services the use of ambulatory emergency care (AEC) <sup>1</sup> has been shown to potentially play a pivotal role in decreasing length-of-stay (LoS) <sup>2</sup>, and thereby reducing costs to the NHS <sup>3, 4</sup>. An innovation opportunity at a district general hospital allowed us to re-design the existing small assessment bay and develop a new AEC service with the aim of providing an efficient and safe, senior decision maker led service.

### **Methods**

A multidisciplinary project team utilised process activity mapping (PAM) and evidence-based service re-design to develop an optimised patient process. The use of Point-of-Care (POCT) diagnostics was realised to be key to the reduction in patient LoS and improved departmental efficiency <sup>1</sup>. The service utilised national best practice guidelines; expedited investigations; appropriate patient treatment/discharge planning; early assessment by senior decision makers and condition-specific management algorithms to provide process control. Failure mode and effect analysis (FMEA) was employed to provide on-going governance.

### **Results**

A 3-month pilot showed dramatic improvement in patient flow despite the 7.61% year-on-year increase in medical inpatient activity. This resulted in a reduced LoS from 1.04 to 0.8 bed days within the AMU; mean LoS for cohort reduced by 40.8% from baseline with median LoS of 110 minutes (Table1); an increase in same-day discharges in AMU with an associated 8.93% reduction in 1,2 and 3 day LoS patient admissions.

### **Discussion**

The overall changes to process and adoption of the ambulatory model, along with evidence based service redesign and integration of POCT, has allowed us to provide emergency medical patients with efficient, high quality care. Through moving to a new unit in mid-May we've shown further operational improvements (table 2). By increasing both staff and patient engagement, we expect continually improving operational performance and clinical outcomes to reach our 90 minute goal.

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**Title: Clear structure and leadership to an assessment area can reduce patient length of stay (LoS)**

**Category: Service Organisation and Design**

**Main Author: Aamer Naveed Ali**

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**Background:**

September 2014, Geriatric department took over the management of a medical assessment ward at Nottingham University Hospitals. A large team of consultants provided daily cover. Staff morale was low, patient care disjointed and a lack of leadership and consistency in ward processes.

**Objectives:**

To provide leadership and improve consistency of ward processes to reduce LoS and enhance staff experience.

**Methods:**

A clinician lead and dedicated project manager were appointed to provide leadership and engage the team in process redesign.

A standardised operating procedure (SOP) including roles and responsibilities was developed with the team. We ran focus weeks where specific aspects of the SOP were score boarded to embed the process and enhance accountability. Consultant job plans agreed to ensure daily geriatric presence.

Through a series of Plan Do Study Act (PDSA) cycles we introduced:

- A 9am "huddle" for staff allocation and safety and process messages.
- Morning and afternoon board rounds.
- "One stop" ward rounds.
- Prioritisation sheets (determining patients medically unwell or ready for discharge).
- Optimised IT resources.

**Results:**

Reduction in LoS 35 hours (October) to 29 hours (March). Morning board round consistency increased from 18% to 80% and an afternoon 24% to 60%. Prioritised ward rounds increased from 18% to 100%. Consultants reported being clear about their role, 37% to 76%. The ward team felt happier coming to work (29% to 65%) and felt valued, 18% to 59%.

**Title: Developing the Role of the Advanced Nurse Practitioners in Acute Medicine; Reflecting on Five Years of Experience.**

**Category: Service Organisation and Design**

**Main Author: Jo Grant**

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**Aim**

To develop an Acute Medicine Advanced Nurse Practitioner (ANP) team with knowledge and skills to work in the Acute Medicine Receiving Unit (AMRU), Ambulatory Care and the Assessment Ward. Specifically we wanted to offer a clinical career development option for acute medicine nurses, provide permanence and continuity of workforce with junior doctor cuts and maintain a high quality service for patients.

**Methods**

It was recognised that the training and experience of ANPs was diverse<sup>1</sup>. To ensure high quality consistent training, an AIM Consultant worked in consultation with the first ANP cohort to develop a focussed clinical training program. This supported the RCN model of ANP domains of practice [Figure 1] and was delivered alongside the 3 year postgraduate Masters in Advance Clinical Practice at Nottingham University.

**Outcomes/Results**

3 ANPs are qualified and cover 15% of the junior doctor rota in AMRU and the Assessment Ward. ANPs work clinically at the level of junior doctors (F2-CT2). ANPs clerk, order investigations, diagnose and prescribe with no additional senior medical support than that given to the junior doctors. ANPs take a medical role in Ward Rounds and handovers. ANPs undertake simple bedside procedures (ECGs, catheters, ABGs) and are now training in procedures such as lumbar punctures. With extensive AIM nursing experience, the ANPs are also a valuable resource for the nurses .

A time and motion study illustrated that ANPs see the same patient numbers in a shift as junior doctors [Figure 2]. There have been no concerns about service quality; patient, nursing, medical and pharmacy feedback is positive.

ANPs are active in Audit, Service Improvement and Governance.

Five ANPs are in training.

**Conclusion**

The ANP workforce has helped maintain and improve service despite junior doctor workforce change, reduced locum junior doctor spend, provided stability and retained our experienced clinical nurses in expanded and fulfilling roles.

**REFERENCES**

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## **Title: Did we listen to our patients?-pilot for an international study on re admissions**

**Category: Service Organisation and Design**

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### Introduction

Avoidable re-admissions are considered a major adverse incident after hospital discharge. This has an implication to the patient lives and a cost repercussion to hospitals [1]. It is prudent to analyse the rationale behind avoidable re-admissions. Safer@Home is an international collaborative of Acute Physicians investigating avoidable readmissions. CURIOS (CaptUring Readmission Data Internationally by SAFER@HOME) is an international audit of re-admissions planned for Q1 2016.

### Method

We conducted a prospective pilot for CURIOS at the Ysbyty Gwynedd, Bangor in order to test data collection tools and estimate time requirements for collection of data from 20 medical re-admissions within 28 days after discharge. The pilot started on 17/03/2015 and reached target after 7 days.

### Results

We reviewed a total of 20 re-admissions (mean 3 patients per day, range 1-4).

10 (50%) of re-admitted patients had frailty scores of 6 (moderately frail) and 7 (severely frail)[2]. 9(45%) were re-admitted within 7 days of discharge and 2 (10%) within 24 hours. 5 (25%) of re-admitted patients had more than 5 re-admissions in the previous year.

Patients were asked whether they felt better when they went home during the index admission 10 answered with 'no'. Time to readmission was related to duration of index admission ( $p < 0.03$ ). This became insignificant once adjusted for patients' wellbeing on discharge.

11(55%) re-admissions were judged to be preventable: Common causes were poor considerations of home support, subjective feeling by patients of being "not completely well at time of discharge" and failure to communicate adequately with primary care.

### Conclusion

20 re-admissions per week might result in 800 patients/year, with a potential 440 preventable re-admissions! Attempts to reduce preventable re-admissions should include an assessment of the patient's readiness for discharge and of their home support as well as improved communication of transfer of care.

### References

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2. Rockwood K, Song X, MacKnight C, Bergman H, Hogan D, McDowell I, Minitski A. A global clinical measure of fitness and frailty in elderly people. *CMAJ* 2005; 173(5): 489-95.

**Title: Do MET Calls Alter Management in the Acutely Unwell Patient**

**Category: Service Organisation and Design**

**Main Author: Chris Watters**

**Co-Authors: Jenny Rodrigues  
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**Introduction:** Medical Emergency Teams (MET) are frequently employed to respond to inpatients who are clinically deteriorating as judged by staff observations and track and trigger systems. Their impact is difficult to measure.

**Aims:** to identify how MET attendance alters patient care

**Methods:** retrospective observational review of MET referrals over two weeks at University Hospital Aintree, Liverpool. MET Treatment decisions and implementation were ascertained from audit and case notes.

**Results:** 61 cases were reviewed. Most commonly, MET attended due to physiological abnormalities identified by the Modified Early Warning Score (MEWS) (26 [45%]) or reduced conscious level (20 [34%]). New diagnoses were made in 41 (67%) (with treatment or further investigation implemented in 39). Of those with a new diagnosis seven were reviewed by critical care. Nine patients in total (15.5%) were referred for critical care review with four (6.9%) of those deemed suitable and transferred to ITU/HDU. Of those without a new diagnosis (n=20), 10 cases resulted in a change in management In 13 (21%) cases, new DNACPR was implemented.

**Conclusion:** MET referrals frequently alter the management of acutely unwell and deteriorating patients. The majority of MET calls resulted in initiation of new treatments. Management was altered in those without a new diagnosis, often including not for CPR/MET decisions and/or initiation of medications to optimise symptom control in end of life care.

**Title: Ealing Ambulatory Emergency Care Unit (AECU) and its role in acute medical care and admission avoidance**

**Category: Service Organisation and Design**

**Main Author: Camilla Lonngren**

**Co-Authors: Fiona Wisniacki  
Vikram Paranna**

**Aim:** Ealing AECU was implemented in June 2013 as part of a nationwide initiative to reduce patient attendances to Emergency Departments (ED) and reduce length of stay (LOS) (1). The unit is a six-bed assessment area staffed by one consultant, two middle grade doctors and a nurse. Similar units have had great clinical and financial success in reducing LOS and avoiding hospital admission, in particular when closely integrated to acute medical wards (2). This audit identifies how the Ealing AECU has developed since implementation in terms of number of attendances and how successful integration with medical teams has occurred.

**Methods:** A retrospective audit of all available data from June 2013 to April 2015 inclusive. Data collected through searches on electronic database Symphony and analysed using Excel. Data collected includes referrals from ED, general practice (GP) and medical patients (both recent discharges and those seen on the acute medical take).

**Outcomes/Results:** The number of monthly attendances to Ealing AECU has increased from 6 to 250 per month since June 2013 (Figure 1). There has been a marked increase in medical patients being treated and reviewed in AECU. Only 3 attendances were medical patients in Feb 2014, this increased to 83 in April 2015 (Figure 2).

**Figure 1:** AECU number of monthly attendances (June 2013 – April 2015)

**Figure 2:** AECU referral source (March 2014 – April 2015)

**Conclusion:** This audit shows how utilisation of the AECU has increased dramatically since June 2013. In April 2015 83 medical attendances were seen in AECU, which allowed for early discharge or prevention of hospital stay. In financial terms this saved the hospital trust £25,315 (local tariff £305 per patient per night). AECU is an important part of the acute medical care delivered in Ealing Hospital. With increasing knowledge of AECU capabilities among clinicians, this unit will continue to help reduce LOS and avoid unnecessary hospital admissions, all in keeping with the current climate of financial austerity.

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**Title: EAU admissions on a weekend: Are patients sicker?**

**Category: Service Organisation and Design**

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**AIMS**

Recent reports reveal the extent to the disparity between weekend versus weekday admissions, with reduced staffing and expertise on weekends being associated with more adverse outcomes(1).

The objectives of the study were to investigate whether the increased hospital mortality rate at weekends was in part due to sicker patients attending. We also looked at other patient factors such as age and co-morbidities to assess whether there was any significant disparity between a weekend vs weekend admissions.

**METHODS**

A retrospective cohort study looked at all 390 patients admitted to EAU over a period of 10 days. This included 6 weekdays and 4 weekend days. Referral sources were also compared as well as looking at the age and co-morbidities of patients and whether this was significantly different on a weekend.

**RESULTS**

The early warning score was assessed during weekday was an average of 0.716 compared with a weekend score of 1.026, concluding that patients admitted over the weekend are significantly more ill than those admitted during the week ( $p=0.001$ ).

Furthermore our results showed that patients admitted over the weekend did not significantly have more co-morbidities ( $p=0.353$ ) and were not significantly older on a weekend compared to a weekday ( $p=0.88$ ).

**CONCLUSION**

Reduced senior doctor input and availability of scans are not the only factors related to increased mortality. Our data attributes patient factors as further causes for concern; acute medical patients admitted to hospital are more ill and are therefore more likely to die.

The problem of continuity of care must be maintained if we are to meet the demands of tomorrow's patients. Patients are more ill on weekends, therefore we must have the resources equipped to deal with such admissions or face the reality that patients admitted to hospitals on a weekend are more likely to die.

**REFERENCES**

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**Title: Enhanced integrated Clinical Pharmacy Service on the Admission Ward improves Quality of Care and Efficiency - and is cost-effective**

**Category: Service Organisation and Design**

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**Aim**

Transition of care risks harm to patients from unsafe medication management<sup>1</sup>. We tested the hypothesis that advanced clinical pharmacy practitioners could take on some traditional junior doctor tasks, and improve medication management and safety without detrimental effect on ward processes.

**Methods**

The project was jointly funded by Acute Medicine (offset against reduced junior doctor numbers) and Pharmacy (front-loaded service). Clinical pharmacy presence on the ward was trebled with timings extended and matched to workload. Enhanced roles were supported by non-medical prescriber courses and training to take on additional tasks on ward rounds. The service is supported by a ward dispensary and technicians. Effects were analysed by process data and questionnaires.

**Results**

Clinical pharmacists are now better integrated into the multidisciplinary team and medication safety culture has improved<sup>2,3</sup>. Medicine reconciliation rates increased from 42% to 78% (100% of those clerked). Prescribing quality improved and time to error detection decreased. Reported prescribing incidents fell by 28%. Prescribers welcomed the intervention and report improved own practice. Use of patient's own drugs increased and more drugs were recycled (£1447 average saving per month). Stock levels on the ward improved with perception of fewer drug administration delays or omissions. To take out (TTO) dispensing times decreased by close to 90 min. Patient satisfaction with medication information on discharge is high. There was no adverse effect on other ward process measures such as time to clerking, discharge rates, or length of stay.

**Conclusion**

Clinical pharmacists are well suited to take on additional clinical roles. Their better integration into the admission team and ward processes improves quality of care and efficiency and is cost-effective.

**References**

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**Title: How can I help? – A combination of consultant triage and a process model for ambulatory care greatly reduces medical admissions from primary care**

**Category: Service Organisation and Design**

**Main Author: Ivan Robert Le Jeune**

**Co-Authors: Rebecca Sims**

**AIMS:** Acute Medicine in Nottingham admitted 110 unselected medical patients per weekday. 42% came from primary care after triage by a non-clinical, community-based service diverted <5% to alternative pathways. Most came through the Acute Medicine Receiving Unit (AMRU) which was under extreme pressure. Discovery work demonstrated that between 28 and 35% of patients could have been cared for through alternative urgent care pathways. Our goal was to reduce the number of “wrong place” attenders and therefore release capacity in AMRU to left-shift care processes and convert some patients currently admitted as short stay to ambulatory care.

**METHODS:** Acute Medicine opened a consultant-run triage line to facilitate senior clinical dialogue about patients who GPs felt required admission. This formed the cornerstone of a wider collaborative initiative (the Nottingham Care Navigator) to encourage more effective navigation of patients. All patients directed to AMRU were considered for ambulatory care rather than limiting this to condition-specific pathways.

**OUTCOMES:** In 154 days we handled 4325 calls requesting admission (28.1 per day). 11 patients came to AMRU through other routes. Daily flow is as follows:

(Figure 1)

Through a combination of consultant telephone-triage and a process model of ambulatory care, 42.6% of patients avoided admission altogether. “Wrong place” attendances in AMRU dropped from 28% to <5%. The overall number of GP admissions dropped significantly:

(Figure 2)

The AMRU ambulatory discharge rate was maintained at 39% despite the “easy wins” being kept in the community or redirected elsewhere. This was a result of reduced numbers of patients in AMRU cutting time to clerking, investigation and senior review. Consequently patient and staff experience improved markedly.

**CONCLUSIONS:** Acute Medicine consultant telephone triage and a process model for ambulatory care has reduced admissions, maintained ambulatory conversion rates and had a transformative effect on the quality and flow in our emergency pathway.

# **Title: Implementation of ambulatory emergency care significantly decreases admissions to the acute medical unit**

## **Category: Service Organisation and Design**

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### Aim

Ambulatory emergency care aims to provide acute medical care in a day case setting without the need for hospital admission whilst maintaining high quality standards. There are various models of ambulatory care which are criteria, pathway and process driven (1). Our Trust launched an emergency medicine ambulatory care unit (EACU) in July 2013 employing a criteria specific, passive referral system based on the *Amb* score (2). The unit accepted suitable patients for disease specific and non-specific pathways. This study aimed to assess the impact of EACU on acute medical unit (AMU) admissions in our Trust.

### Methods

A retrospective analysis of AMU and EACU presentations from July 2013 to July 2015 for patient demographics, referral source, disease category, admission rates, 30-day mortality and proportion of patients diverted from the AMU.

### Results

12,387 EACU attendances (new-7087 and follow-up-5300) were recorded across the study period (mean age-58.9, range 16-104) with an average of 1.9 attendances per patient (range 1-23 days). The largest referral source was primary care (52%), followed by A&E (30%) and the remainder from in-patient (10%) or out-patient areas (6%). Analysis of disease conditions over a 1 year period (October 13- October 14) demonstrated that 63% of cases were based on defined pathways (deep vein thrombosis 35%, pulmonary embolism 10%, anaemia 8%, cellulitis 6.2%, first fit 1.1%) and the remainder constituted a broad range of non-defined pathways (including hepatitis, electrolyte abnormalities, hot swollen joints, atrial fibrillation). Analysis of AMU and EACU presentations from June 2014- June 2015, showed that an average 33% of patients were diverted from the AMU (range 17.3-52.5%) with an admission rate of 8%. No deaths were recorded 30 days after presentation to EACU.

### Conclusions

A criteria specific, passive model of ambulatory care has a major impact on decreasing admissions and activity from the AMU.

### References

1. Emergency ambulatory care. Acute care toolkit 10. October 2014. Royal College of Physicians.
2. Ala L, Mack J, Shaw R, Gasson A. The AMB Score: a pilot study to develop a scoring system to identify which acute medicine referrals would be appropriate for ambulatory care management. *Acute Med* 2010;9:141.

# **Title: Improving Ambulatory Turnaround Time in the Acute Medicine Receiving Unit; A Practical Approach**

## **Category: Service Organisation and Design**

**Main Author: Rebecca Sims**

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### **Aim**

The NUH Acute Medicine Receiving Unit (AMRU) provides Admissions Assessment and Ambulatory Emergency Care (AEC). In 2013, AEC waiting times were longer than SAM/RCP Standards<sup>1,2</sup>. This required improvement.

### **Methods**

Flow mapping described current state. Failure Mode and Effect Analysis (FMEA) identified delays to prioritise improvement work. The multidisciplinary clinical team identified factors which slowed ambulatory turnaround and rated their impact. Solutions were developed with greatest emphasis on the highest rated factors. [Figure 1]

#### Highest Rated

- Inappropriate referrals

Problem: With no clinical pre-hospital triage, some high acuity patients were requiring resuscitation on arrival. Other patients did not need the AMRU and could have been community managed or used other pathways. This diverted resource from ambulatory patients. Interventions: Ambulance Service use of MEWS redirected the sickest patients (EWS >6) to "Resus" in the Emergency Department. Consultant telephone triage directed other patients to appropriate pathways (eg DVT) or community management.

- Delay in Identifying Potentially Ambulatory Patients

Interventions: Some ambulatory patients identified by Consultant telephone triage. All attenders considered for AEC. Nurses triage within 15 minutes of arrival using MEWS and an internally validated streaming tool [Figure 2] to flag potentially Ambulatory patients.

- Delay in Consultant Assessment

Interventions: Consultant on AMRU 9am-10pm. Ambulatory patients seen ASAP with junior "buddy" (ANP/Dr) to progress the plan, order tests, present results, complete prescriptions and discharge paperwork.

- Delay in Diagnostic Testing

Interventions: Bloods at triage using IATs, fast-podded with samples split for faster analyser turnaround. Clinical Pathology fast-track results within 1 hour. Radiology prioritises requests and offers "protected slots".

#### Other Interventions

- Unit "zoned", minimising patient moves.
- Named nurse and doctor. Tasks tracked on a board. Regular boardrounds reduce delays.

### **Results/Outcome**

Ambulatory LOS reduced from median 5h48mins (Feb 2014) to 3h28mins (May2015). RCP/SAM Standards achieved. Patient feedback improved. The ambulatory conversion rate was maintained at 39% despite triage redirecting some "easy wins", suggesting improved processes.

## **Conclusion**

Structured clinically led interventions improved AEC performance in AMRU.

## **References**

1. Society of Acute Medicine; Clinical Quality Indicators for Acute Medical Units
2. Royal College of Physicians. Acute Care Toolkit 10 Ambulatory Emergency Care.

**Title: Low-risk chest pain – streamlining the patient experience**

**Category: Service Organisation and Design**

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**Aim**

Patients with chest pain and an abnormal ECG have a high probability of cardiac disease. Patients with a normal ECG often do not require admission.

Patients with low risk chest pain may experience delays in being clerked due to pressures on medical takes leading to unnecessary admissions. Direct referral, or discharge and early review, on the ambulatory care unit (ACU) with exercise tolerance testing may be preferable to being admitted on the medical take.

This project assessed the impact of targeted utilisation of an ACU for patients with low risk chest pain.

**Methods**

We retrospectively surveyed all patients with low risk chest pain who presented to the Emergency Department over a two-week period in May 2014. Patients were suitable for ACU if they had possible cardiac chest pain, normal ECGs and a negative 6-hour troponin.

We introduced three changes:

- 1) All patients to be clerked by Emergency Department staff
- 2) Allowing patients to wait for 6 hour troponin on ACU provided the result would be available in ACU hours
- 3) Regular education of Emergency Department staff about the use of ACU

We then prospectively surveyed all patients with low risk chest pain over a two week period in July 2014.

**Outcomes / Results**

Similar numbers of patients were admitted before and after the intervention (37 vs 33) and a similar proportion were eligible for ACU referral 78% vs 82%. Of those suitable for ACU, 27% (pre-intervention) versus 68% (post-intervention) were managed there ( $p < 0.01$ ); overnight stays decreased (total bed days 40 to 14,  $p < 0.01$ ). Mean time from presentation to clerking reduced from 85 to 75 minutes ( $p = 0.55$ ).

**Conclusion**

A significant number of bed days may be saved through targeted utilisation of ACUs as well as promoting timely senior assessment, appropriate discharge and reducing workload for the acute medical team.

# **Title: Medicines Management in the AMU: Benefits of a Whole System Change and Multidisciplinary Team Working**

## **Category: Service Organisation and Design**

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### **AIMS**

High quality medicines management is vital for an acute medical unit (AMU) to operate safely. The high turnover of patients with increasingly complex drug regimes, creates an environment where errors can easily occur. Feedback from our hospital incident reporting system (HIRS) showed that errors were occurring, ranging from controlled drug discrepancies, lost medication and unintentionally omitted medication. Poor medicine storage systems were implicated in approximately 80% of cases.

A prospective audit in December 2014 confirmed the need to improve medicines management. For example, only 42% of patients' own drugs (PODs) were stored in POD lockers, whilst stock drugs were not locked away in treatment room cupboards. Contributing factors included broken stock cupboards, broken POD lockers and inadequate treatment room space.

A clear strategy for change was designed and implemented by our senior ward manager and pharmacist. We describe the change process and benefits achieved.

### **METHOD**

Immediate simple actions to reduce incidents were implemented. The AMU ward manager wrote a business case for new storage systems, highlighting the risk from problems identified above. The business case requested 56 new bedside lockers with electronic swipe card access, replacement of all treatment room drug cupboards and a suitable working environment, with storage facilities, for AMU pharmacy team.

### **RESULTS**

The benefits include:

- more nursing time for patients, less time needed for drug rounds
- fewer HIRS reports
- money refunded to AMU from stock returns
- reduced stock holding, hence safer selection and reduced pharmacy costs
- faster turnaround of discharge medications
- less risk to patient care due from medication error

### **CONCLUSION**

Improving medicines management on AMU is multifactorial, including multidisciplinary medication incident meetings, clinical audit and support from senior nursing, pharmacy and medical staff. Installing new storage systems has led to a fresh take on established systems and will ultimately increase the standard of patient care.

**Title: Sustainability - The Advanced WaY**

**Category: Service Organisation and Design**

**Main Author: Kate Smith**

**Co-Authors: Jessica Moxon**

Acute medicine has seen the introduction of the advanced practitioner role. This new addition has required integration of the professional workforce to bring about progressive changes within service structure and redesign. The role offers Acute medicine consistency and sustainability moving forward.

Within Leeds Teaching Hospitals NHS Trust the Advanced Practitioner role predominantly relates to clinical practice, delivering complete episodes of care including prescribing. Other aspects of the role involve leadership, education, audit and service development.

Acute medicine has been the pioneering CSU within Leeds Teaching Hospitals in regards to implementing a robust clinical governance structure for advanced practice. The platform to highlight evidence which demonstrates clinical effectiveness and the direct impact of advanced practice on the following key areas.

Patient safety – Evidence demonstrates consistent progression in clinical effectiveness and efficiency throughout the training period. Advanced Practitioners are now an integral role within acute medicine, requesting and interpreting appropriate investigations and formulating accurate diagnosis.

Medicines management – Advanced practitioners have consistently demonstrated safe prescribing practice with an overall score of 99.6% achieved in a monthly prescribing audit. In comparison an overall score of 94% was achieved by medical doctors.

Service redesign – Key areas for improvement have been identified and a dynamic approach has led to the transformation of services and processes to ultimately improve standards. Part of the Advanced Practitioner's role within Leeds Teaching Hospitals is ensuring the right patient is in the right at the right time. Through consistency, key knowledge of processes and appropriate utilisation of services, the advanced practitioner is a key feature in admission avoidance.

Increasing assessment productivity and working towards an assess to admit model rather than admit to assess, combined with screening all referrals from ED has had a direct impact on inappropriate admissions and length of stay. These are both factors commonly known to contribute to negative patient outcomes. .

Patient experience – The service provided by advanced practitioners is consistently rated as 'excellent' in 95% of completed episodes of care. The remaining 5% were rated as 'good'. There have been no formal complaints or clinical incidents directly related to advanced practice.

**Title: The Bolton DVT Clinic**

**Category: Service Organisation and Design**

**Main Author: Arun Kallat**

**Co-Authors: Beatrice Fox  
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**Aim**

The nurse managed (1) consultant led Deep Vein Thrombosis (DVT) clinic was established in 2010. Previously patients were assessed (2-4) by the nurses using the Wells score and venometry followed by senior medical review. Patient flow was slow due to delay in medical review and radiology department imaging. Service redesign was implemented to improve

- Timely diagnosis & management
- quality of care
- patient satisfaction & safety
- flow

**Methods**

Following negotiations we secured imaging from the private sector. Patients undergo a whole leg scan at the first visit. Venometry is no longer done. Clinic skill mix is: 3 band 6 nurses supervised by a Consultant nurse.

Service offered:

- Parenteral & oral anticoagulation with appropriate counselling
- Information regarding diagnosis & management of DVT and superficial thrombophlebitis
- Referral/review by vascular team as appropriate
- Local anticoagulation service with safe transition to community stakeholders
- Differential diagnosis if DVT excluded
- Timely GP correspondence and follow up of all DVT patients in a consultant clinic
- Education for staff, patients and relatives/carers

**Clinical outcome**

Significant improvement post service redesign noted. Data illustrated in supporting information below

Staff development

DVT clinic nurses are Non-medical prescribers. One of the nurses is the VTE champion. She works with the Hospital Associated Thrombosis (HAT) team to update the HAT database and ensures 100% completion of RCA for HAT required to sustain National VTE Exemplar status. Bolton VTE team was short listed at the Greater Manchester clinical research awards 2014 for successful recruitment in the PREFER VTE trial.

**Conclusion**

Flow through the clinic is excellent and patient satisfaction based on two surveys, ranged between very good to excellent. This innovative DVT clinic model has significantly improved efficiency & patient safety as well as quality of care, with more than 98 % of the referrals managed as outpatients.

**References**

1. Shirley Partington, A nurse-led outpatient service for patients with DVT. Nursing Times 2003 Jan 21-27; 99 (3)26-7
2. Wells P.S Integrated strategies for the diagnosis of venous thromboembolism. Journal of Thrombosis and Haemostasis 2007 Jul;5 Suppl 1: 41-50
3. Keeling DM, Mackie IJ, Moody A, Watson HG. Guidelines on the diagnosis of DVT in symptomatic outpatients and the potential for clinical assessment and D-dimer assays to reduce the need for diagnostic imaging. British Journal of Haematology 2004 Jan;124(1), 15- 25.

4. Wells P.S, Kovacs M.J, Bormanis J, Forgie M.A, Goudie D, Morrow B. & Kovacs J. Expanding eligibility for outpatient treatment of venous thrombosis and pulmonary embolism with low molecular weight heparin. Archives of Internal Medicine 1998; 158(16): 1809- 1812.

## **Title: The Introduction of an Acute Medical Assessment Clinic**

### **Category: Service Organisation and Design**

**Main Author: Lauren Grace Hoare**

#### **Aim**

The Norfolk and Norwich University Hospital Acute Medical Unit admits 70-100 patients daily. This number has continued to grow annually, with no increase in bed capacity. 25% of admissions are discharged on the day of admission. These same-day discharges were highlighted as an area in which we could reduce admissions by establishing an Acute Medical Assessment Clinic (Clinic), where we could assess and manage patients on an outpatient basis, negating the need for admission.

#### **Method**

Patients were selected for Clinic using our pre-existing referral system. Patients were deemed suitable for Clinic if they had an Early Warning Score (EWS) of 0 or 1 and had a presenting complaint or likely diagnosis included in the Directory of Ambulatory Emergency Care for Adults. The patient was assessed by a nurse who performed basic observations, ECG and blood tests, then reviewed by a Doctor who arranged investigations or treatment, admitted or discharged the patient, and arranged any necessary follow up. Each patient seen in clinic was charged on an outpatient tariff.

#### **Outcomes**

We have reviewed 436 patients in Clinic. We have shown a significant reduction in admissions - 86% (373/426) of patients discharged from Clinic; 14% (63/426) requiring admission. Only 7% (29/426) of patients were admitted to hospital within 30 days of their clinic attendance.

#### **Conclusions**

The introduction of an Acute Medical Assessment Clinic has been shown to significantly reduce medical admissions. We should continue to expand this service to further streamline medical admissions. Introducing Registrar-led clinics and increasing the clinic to a daily service can further increase the capacity of Clinic. By reviewing patients on an outpatient basis on an outpatient tariff, we can further improve our Acute Medicine service by reducing costs.

# **Title: Use of a Discharge Bundle in Older People on the Acute Medical Unit (AMU) Reduces Readmissions**

## **Category: Service Organisation and Design**

**Main Author: Jenny Fox**

**Co-Authors: Anumm Javed**

### Aim

Readmission to hospital has financial implications for acute trusts. Rates of readmission are higher in older people than their younger counterparts and there is limited evidence supporting preventative interventions in this heterogeneous population.

Our multidisciplinary team (MDT) designed a 'discharge bundle' to be used on older people discharged home from our AMU. It was postulated that this multifaceted approach would reduce readmission rates.

### Methods

Case-notes were reviewed retrospectively for 94 older people discharged from AMU in March and April 2015. 47 patients were discharged from within our frailty zone where the intervention was piloted and 47 patients were discharged from elsewhere on AMU and used as a control population.

### Outcomes/Results

Results are demonstrated in Figure 1.

The two populations were well matched for age, sex and comorbidities, although the intervention population were significantly more frail ( $p < 0.001$ ) and were more likely to have dementia than the control population.

Aspects of the discharge bundle were completed inconsistently in both populations, with a mean completion rate of 46.2% in the intervention population and 16.7% in the control population.

Readmission rates were lower in the intervention cohort (17% v 26%) although this was not statistically significant ( $p = 0.31$ ).

### Conclusions

Employment of a discharge bundle on the AMU results in lower readmission rates in older people.

The discharge bundle was used inconsistently and it is not clear which facets have most impact.

**Title: What's in a number? The reliability of hospital mortality figures.**

**Category: Service Organisation and Design**

**Main Author: Kate Elizabeth Armitage**

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## **Aim**

The annual quality report for North Tees and Hartlepool foundation trust (NTHFT) identified increasing hospital standardised mortality rates (HSMR) and summary hospital-level mortality indicator values (SHMI) as a challenge for the trust in 2013-2014.[i]. An aim of the 2014-2015[ii] was to reduce avoidable deaths by reviewing all available mortality indicators. NTHFT place great emphasis on ambulatory care services, due to their potential to reduce hospital admissions[iii]. We reviewed deaths within 30 days of an emergency presentation to ambulatory care, as identified by the Health and Social Care Information centre (HCIS) in order to:

1. Analyse whether this statistic accurately reflected quality of care.
2. Identify trends in patients who die within 30 days of discharge from ambulatory care.
3. Inform further quality improvement work.

## **Methods**

- Retrospective review of case notes of patients who died within 30 days of discharge from ambulatory care at NTHFT in 2013.
- Two reviewers independently classified the deaths according to the Hogan scale of preventable deaths.
- A third review was completed on concerning or contentious cases to allow data triangulation.

## **Results**

(See supporting file 1)

Of the 8073 patients attending ambulatory care in 2013, 41 died within 30 days of discharge. 5 were excluded from analysis.

Of the 30 definitely not preventable deaths, 25 had advanced malignancy. Concerning cases were then reviewed in detail.

## **Conclusion**

NTHFT provide a safe, robust ambulatory care service. The majority of deaths were deemed unpreventable on review. Mortality statistics cannot be used in isolation as a reliable marker of care quality [iv].

## **References**

[i] Annual Quality Account, North Tees and Hartlepool NHS Foundation trust, 2013-2014

[ii] Annual Quality Account, North Tees and Hartlepool NHS Foundation trust, 2014-2015

[iii][http://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)

[iv] Report from the Steering Group for the National Review of the Hospital Standardised Mortality Ratio, Department of Health, Nov 2010