Medical Admissions Reduction at the Royal Derby Hospital

What have we achieved?

1. **A 39% reduction in overnight admissions** from the community by redesigning the acute medical primary/secondary care interface to ensure senior decision makers are placed at the heart of the gatekeeper role.

   (audit size n=1600)

   ![Pie chart showing 39% reduction and 61% admitted]

2. **A significant impact on the Trust 4 hour target** - by selecting obvious ambulatory medical patients from the moment they arrive in Accident and Emergency (A&E) and streaming them to a well resourced, well designed Ambulatory Care Centre (ACC).

   ![Graph showing ED Performance Jan - June, 2012]

   ACC opened March 26th.
3. A decrease in the number of referrals from A&E being made to medicine in the last 30 minutes of the 4 hour target, and a decrease of 30 minutes in the average waiting time for medical patients seen in A&E. Also a decrease in the Upper Control Limit by over 100 minutes when compared to the process prior to the ACC opening.

![Graph showing waiting times and control limits](Image)

4. An increase in patient satisfaction. Moving from a system that generated nearly three complaints a week to a system that has generated only one complaint in 8 months.

![Bar chart showing complaints](Image)
How did we achieve this?

Streamlining referrals from A&E to the Ambulatory Care Centre.

The system at Derby involved a consultant presence for 12 hours a day manning a triage station. Here patients admitted from either the community or A&E were seen and assessed by a consultant acute physician. Immediate treatment was commenced, diagnostic tests ordered and patients who did not require admission were reassured and discharged. This system worked well in a lot of respects in that it prevented unnecessary admissions, ensured urgent treatment was delivered in a timely fashion and reduced misdiagnosis.

The main problem with this system occurred during peak admission times, when the triaging physician was often overwhelmed by patients appearing all at the same time - most notably between 1600 and 1900h. During these times at which peak numbers of patients from the community would arrive in the Medical Assessment Unit (MAU), triage became overwhelmed causing a backlog in A&E. More often, in order to maintain flow and achieve the four hour target, GP patients were left waiting for longer in order to accommodate A&E patients in triage. This at times verged on the unsafe as the GP patients were unselected and unassessed and could present with conditions varying from the trivial to the life threatening.

In order to overcome this bottleneck, evidence based selection criteria were developed with specialty physicians to pluck appropriate medical patients out of A&E at the earliest opportunity and move them to a specially designed centre to assess and treat them. These criteria focussed not on transferring everyone who might possible go home, but the highest number of those likely to do so. Initially three or four conditions were selected with more being added every two weeks to ensure that the centre could cope with the throughput and the demand.
We now see ambulatory patients with the following conditions:

- First Seizure
- Headache
- Anaemia
- Pulmonary Embolism
- Asthma
- Seizure in a Known Epileptic
- Cardiac Chest Pain
- Syncope
- COPD
- Upper GI Bleed
- DVT
- Ambulant General Medical Conditions
- Cellulitis
- Deranged LFTs
- Hyperkalaemia
- High INR

All conditions are selected via three general criteria as shown on the GI bleed form above. Historical criteria should be those which are immediately obtainable by talking to the patient. Similarly, examination findings should be determinable at the bedside. Holistic criteria focus the attention back on to the patient and ensure that ambulatory assessment is in their best interests. At the bottom of each form are instructions to the selecting staff to ensure that the correct tests are sent as early a possible in the patient journey and that the Ambulatory Care Centre is made aware of the impending referral.
Senior A&E doctors were allocated to ‘pitstop’, the A&E receiving area, to select appropriate patients using the ambulatory selection tools. Suitable patients bypassed MAU triage moving straight to Ambulatory Care which, along other departmental measures resulted in less patients in A&E and subsequent improvements in the 4 hour target and A&E waiting times.

Controlling the flow from the Community:

Previously the medical take at Derby did not have any gatekeeper role. GPs and community nurses would phone non-medically qualified clerical staff who would add referrals to an expected list. Physicians, senior or otherwise had no idea what patients were going to attend until they arrived - often with documentation of variable quality - at MAU.

By diverting all phone calls to a consultant physician who would then decide on whether a patient should attend hospital, and if so which department and in what time frame, senior decision makers were placed at the heart of gatekeeping of the acutely unwell.
This had a number of major effects.

1. ‘Worried well’ and those needing ‘rule out’ tests (tests which the GP and the consultant did not expect to reveal any pathology or illness, but which needed to be done ‘just in case’) could be directed straight to the Ambulatory Care Centre bypassing the triage process on MAU.

2. Patients could be diverted to outpatient clinics if more appropriate, and the GPs felt empowered to make this choice because they had the support of a hospital consultant.

3. Patient’s could be treated in the community by GPs and specialist teams following advice from a consultant physician.

4. Improved patient experience for those attending the Royal Derby Hospital. Patients are seen by the right people in the right setting first time.

5. Admissions during busy times on the MAU (E.g. 1600-1900h) could purposefully be avoided by delaying admission until the following morning for routine but necessary problems (E.g. anaemia, headache).

6. Complex patients’ best interests could be decided with joint decision making between the patient, primary and secondary care physicians prior to hospitalization.

7. Palliative patients could be treated in the community following joint decision making by primary and secondary care.

8. The very small number of GPs who sent patients in to hospital as an ‘easy fix’ were prevented from doing so. (The initial audit performed 4 months after the introduction of the new GP telephone triage system showed an absolute admission avoidance rate of 13% which had fallen after 18 months to 10%. This suggests that 3% of patients who would previously have been referred were now being more appropriately treated in the community without any referral to secondary care).

These can be summarized as:

**Reducing Unnecessary Admissions,**
**Providing a Specialist Advice Service,**
**Streaming Patients to the Right Place First Time and**
**Improving Patient Flow from A&E to the MAU.**

By taking control of the patients being sent to the MAU, we were able to avoid 10% of admissions, divert 37% of referrals to the Ambulatory Care Centre, appropriately stream 3% to A&E (via 999 ambulance thereby avoiding possibly fatal longer waits as GP transfers to MAU only warrant a 2 hour ambulance response time). 1% of referrals were diverted more appropriately to the surgical take.
In order to validate these figures, we looked at the 7 and 30 day readmission rates for a sample (n=50) of those patients who we thought had avoided admission. This revealed a 4% 7 day readmission rate, and a 2% 8-30 day readmission rate, giving a 30 day readmission rate of 6%.

**Phone Triage Patient Destinations**

- MAU: 49%
- ACC: 37%
- Avoided: 10%
- ED: 3%
- Surgeons: 1%

**Validated Admissions Avoided - GP phone triage**

- Avoided: 94%
- Readmitted: 6%
Similarly we looked at those patients sent to the Ambulatory Care Centre from the community via the GP phone triage system.

**Destinations of ACC Patients from the Community**

<table>
<thead>
<tr>
<th>Destination</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharged</td>
<td>76%</td>
</tr>
<tr>
<td>Immediate admission</td>
<td>16%</td>
</tr>
<tr>
<td>7 Day readmit</td>
<td>2%</td>
</tr>
<tr>
<td>8-30 Day readmit</td>
<td>6%</td>
</tr>
</tbody>
</table>

This showed that 16% of these patients, upon assessment by medical staff, were felt to need hospital admission and that 84% were discharged. The 7 day readmission rate was 2% and the 8-30 day readmission rate 6% giving an overall readmission rate of 8% and an admission avoidance rate of 76%. This highlights an important function of the Ambulatory Care Centre - that of a safety net - in that although we expect every patient sent there to be a potential discharge, a significant minority are given open appointments to return should their symptoms not improve as expected.

Taking into account the readmission rates for those patients streamed to the Ambulatory Care Centre and those ‘Avoided’, 61% of community medical referrals passing through GP phone triage were admitted overnight to the Royal Derby Hospital whilst 39% were avoided.

**Clinical Models of Care for the Ambulatory Care Centre**

We have very specifically introduced a system of care which ensures that the patients coming to the Ambulatory Care Centre are safe to do so. We also ensure that patients with specific high risk diagnoses are only discharged from the centre if they meet very strict evidence based criteria. We have deliberately however avoided over - protocolising the clinical process within the Centre as patients selected do not come with a specific
diagnosis - rather a possible one made after a very quick ‘once over’ either in A&E or by telephone - all-be-it by a senior clinician. In this way, the staff working within ambulatory care are free to make their own clinical diagnosis, without being bound by labels attached to patients after cursory diagnostic assessments elsewhere.

Patients arriving at the centre are met by a dedicated receptionist who ensures they are booked in to the computer system and receive a patient information leaflet detailing what they can expect to happen. Should they consent, their mobile phone number is taken to enable them to leave the department and be called back when required. Patients have bloods taken and ECGs performed if necessary and are sent for any radiological investigations that they might require. They are seen by a doctor and any treatment required is started. We aim to have people seen, treated and discharged within 3 hours, however, depending on the complexity of the diagnosis a number of patients will wait longer than this.

The Centre can provide rapid access ECGs, Bloods, CTs, USSs and MRI as well as a senior medical opinion. By ensuring the gatekeepers to the Centre are senior secondary care clinicians, we make sure that these tests are used appropriately, and not by those attempting to usurp waiting lists. The Centre is used in a flexible way and has clinical recliner chairs that can be used for procedures, giving IV infusions and blood transfusions, as well as for medically fit overdose patients awaiting mental health review. MAU patients can be discharged to the ACC to wait for medications or blood test results and as such it can serve as a safe discharge lounge for Acute Medicine. Within the Ambulatory Care Centre, we house the DVT clinic and have in-reach from cardiac and respiratory nurse specialists. The unit is staffed by senior research registrars, SAS doctors and GPs with special interests in hospital medicine. In addition we have dedicated clinical support, nursing staff and HCAs. It is open between 0800 and 2300h daily and treats up to 60 patients a day.

It is worth noting that, contrary to some developing models of ambulatory care, both the phone triage process, and the Ambulatory Care Centre deal with elderly patients as effectively as those of lesser years.

Age Ranges

![ACC](image1)

![Avoided](image2)
**Intervention Components**

**Capital Investment.** The old ‘Clinical Decisions Unit’ was redesigned and underwent a £60,000 redevelopment to make it fit for its new purpose. A great deal of thought was put into this redesign - in particular to ensure that the new waiting areas looked as least like a hospital as possible.

**Clinical Pathways.** Pathways were put in place to ensure that ambulatory patients presenting to A&E were not put on trolleys or in wheel chairs but streamed as ‘walking well’ to the new centre - knowing that they would most likely be going home. This proved an extremely useful approach to over medicalized and frequently presenting patients.

**Improving Patient Experience.** Improved patient experience was placed at the heart of the redesign and focused on three specific areas:

1. Improved environment:
   a. Comfortable seating (coffee shop style),
   b. Papers, magazines, food and drink,
   c. Broken sight lines and contemporary decoration.

2. Clinical pathway standardization with streamlined selection and clear discharge and admission criteria. The former selected the a high percentage of ‘easy win patients’ The latter prevented inappropriate patients being discharged unsafely to the community. An evidence based discharge checklist has to be completed prior to discharge. Any patients not fulfilling all of the discharge criteria would be admitted to the MAU.

3. Active management of patient and relative expectation.
   a. Introduction of text messaging system to allow patients and relatives to leave the unit when not needed.
   b. Leaflets explaining the purpose of the Centre - to get people home safely the same day, and explaining the processes going on behind the scenes and how long these take. We promise the right decision by the end of the day, not a rushed decision in an arbitrary time limit.
   c. Limiting visitors to the unit to one per patient - not only allows for more patients to be treated in a limited space, but ‘mystery shopping’ studies showed that multiple relatives actually generate considerable discord. Whilst patients are often happy to wait for assessment and treatment and understand the processes involved, relatives are less so, especially if they can bounce their discontent off other friends and relations. This simple measure rather surprisingly dramatically increased patient satisfaction.

**Staffing.** In addition to making the Centre itself fit for purpose, investment was made in staffing. Within 3 months, the workload had increased by over 80% meaning the old way of staffing the unit was unsustainable. By making use of a core staff of research registrars and introducing an internet cloud based, self rostering system open to selected, suitably qualified staff, a continuous medical presence has been rapidly developed and maintained. Most of the non-core medical staff have other ‘day jobs’ and work on zero hours contracts, being paid for the shifts they sign up for. All staff are specifically trained and inducted.
Communications and IT infrastructure. Phone triage required a small change in the call handling protocols to ensure that community calls were routed to the correct physician and the outcome of that conversation actioned. In order to ensure proof of concept before adoption, the new system was trialled using a Limited Liability Partnership with Aesclepius Ltd, a company owned and operated by one of the consultant physicians at Derby. Having proved that admission avoidance and triaging was both possible and desirable by robust data collection and analysis, this was migrated to the job plans of the 7 consultant physicians at Derby thus providing a 5 day a week service. Technology was introduced to ensure that these physicians were able to work from home for this shift with full access to historical radiology, blood tests and clinic letters. This possibility of working from home meant that the new working practices met with very minimal resistance and were actively welcomed by the majority of staff concerned.

Impact

The main impact of these changes has been the reduction in overnight medical admissions by 39%. We have not created unmet need because we have changed the way in which we handle referrals. We have not in any way affected the number or quality of the referrals themselves. Improved patient experience, and markedly improved communications between primary and secondary care physicians have also been seen. We are, to some extend, able to smooth out the 1600h ‘bump’ when traditionally the unit is at its busiest with new admissions.

Financial Impact.

The Royal Derby Hospital is paid a Locally Agreed Tariff for patients attending the Medical Assessment Unit. Because we have chosen to treat the ambulatory care centre as essentially an outpatient unit, we do not attract the Best Practice Tariffs for patients attending it. In order to do so, we would need to count these patients as admissions to an inpatient facility. This has a number of advantages for both the Trust and Healthcare Commissioners. By pushing more activity through MAU triage costs (via a Locally Agreed Tariff) are increased, however this is offset by savings made by the considerable number of avoidable admissions. This makes the process as a whole attractive to the Commissioners. Similarly, although the hospital gains from the increase in activity and
income through the LAT, one of the major effects of introducing this system has been the increase in patient throughput from A&E realizing significant 4 hour target benefits. This makes the process attractive to hospital management.

**Conclusion**

By placing consultant level senior decision makers, each with a good working knowledge of local services at the heart of the medical admissions process, and by building a well resourced ambulatory care facility, we have achieved a significant reduction in overnight medical admissions whilst improving patient care and satisfaction. An important component of this redesign’s success was the use of consultants with daily experience of a wide range of presenting medical conditions. There are limited specialties that provide this exposure and the necessary experience, Acute Medicine and Geriatrics being the most obviously suitable. A single point of access for community referrals was essential and one of the challenges we had in implementing change was ensuring that the many previous pathways into the Medical ‘Take’ were redirected through the channels we wanted to use. One unforeseen consequence of selecting, at such an early stage, those patients able to go home was a marked increase in the Length of Stay for those that remained. Whereas prior to implementation it was quite normal to discharge a large proportion of patients on the Post TakeWard Round, this decreased considerably as the acuity of those patients in the unit increased.

We think our model for front door admission management is both scalable and replicable as do others. We at Derby have been asked to look at provision of phone triage services for parts of Staffordshire, and this something we are currently preparing to deliver.

**Enquiries and Comments to:**

Dr David Staples  
MBiochem(Oxon), BMBCh(Oxon),  
MRCP, MMedSci(ClinEd), FRSA.  
david.staples1@nhs.net  
www.david-staples.org.uk

Consultant Physician in Acute Internal Medicine and Lead Consultant for Service Development,  
The Royal Derby Hospital.

Clinical Adviser (Medicine), The Parliamentary and Health Services Ombudsman.

Director, Aesclepius Ltd.  
www.aesclepius.co.uk

*Thank you for inviting me to speak!*