

Can Ambulatory Emergency Care have a positive impact on acute services?

N Narayan & SR Gulliford

Abstract:

Ambulatory Emergency Care is a key component of the service for many Acute Medical units across the United Kingdom. A well-functioning ambulatory care unit facilitates early senior review by a consultant and may reduce the need for hospital admission by managing patients along alternative safe clinical pathways. In this article, we present 12 months of data (January 2014-January 2015) from our Ambulatory Unit at Wrightington, Wigan and Leigh NHS Foundation Trust (WWL NHSFT), which demonstrates how many different conditions can be safely managed along ambulatory care pathways and how this can significantly contribute to positive patient satisfaction survey results and meeting the A&E 4 hour target for a medium-sized Acute Trust such as WWL NHSFT. We also emphasise that the key factors of co-location of ambulatory care with the Emergency Department along with dedicated medical and nursing staff are essential to the success of this model of care.

Key Learning Points:

- Ambulatory Care Units can positively contribute to reducing the number of acute admissions to hospital beds.
- Ambulatory Care Units can contribute to maintaining Emergency department performance against the National 4 hour standard.
- Co-location of Ambulatory Care Units with the Emergency Department is important to ensure that activity through the unit is maximised.
- Ambulatory Care Units need to be optimally staffed with dedicated medical and nursing staff to ensure that they function effectively to reduce admissions and provide timely care.

Introduction

Wrightington, Wigan and Leigh NHS Foundation Trust (WWL) is a medium-sized Trust in Greater Manchester. Like every other acute Trust, it has experienced increasing pressures on its Emergency Department (A&E) and bed-base of medical beds, with increasing numbers of complex, often elderly, medical patients presenting daily.

WWL established an ambulatory care unit in 2011, in an attempt to change the way that the division of medicine managed its unselected medical take. This developed into a purpose-built Ambulatory Assessment Area (AAA) in 2012, with a full complement of dedicated nursing staff, a clinical lead (Consultant Acute Physician) and dedicated junior medical staff.

This area now meets the principles of AEC (Ambulatory emergency care) (Figure 1) and in doing so we believe it provides not only a high quality efficient safe service for patients, but is also pivotal to the performance of the Trust in unscheduled care and Emergency Department (ED) performance. We present, in this article, an argument for every

acute Trust to develop a high quality ambulatory assessment model.

The Ambulatory Assessment Area

The AAA is part of the emergency care centre located in geographical proximity to the emergency department, clinical decision ward and acute medical wards (Figure 2A). The AAA has separate triage and clinical area. The triage area has separate rooms for registration and clinical triage to ensure patient confidentiality. The clinical assessment area has five patient trollies, which are primarily used for clinical assessment and administration of clinical treatments. There is only a single side room which can be utilised for patients that require barrier nursing. (Figure 2B)

Opening hours

The unit is operational seven days per week. During weekdays, it is open from 09:00-21:00, with the last clinical admission being 18:00. Over weekends and back holidays the unit is open from 11:00-19:00, with the last clinical admission being 16:00.

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Figure 1. Principles of AEC (adapted from RCP Acute care toolkit 10 – Ambulatory Emergency Care (October 2014).

1. Senior Clinical input is needed at the point of referral, to redirect suitable patients to ambulatory care.
2. Clear exclusion criteria based on the National Early Warning Score (NEWS) should be developed to maximise patient flow to ambulatory care.
3. Where possible, the AEC service should be located close to accident and emergency (A&E)
4. Staffing and resources should be organised to provide rapid assessment, diagnosis and treatment on the same day.
5. The time standards in AEC should match the clinical quality indicators for ED, ie time to initial assessment – 15 mins, to medical assessment – 60 minutes and completion of 95% of episodes within 4 hours.
6. Patients should be informed early in their journey (ideally in the ED or by GP) that they are likely to receive treatment that day and are unlikely to be admitted overnight, to manage their expectations and those of their family.
7. Secondary and primary care services should be geared around patient needs and work together to provide ongoing care outside of hospital, to avoid a full admission.
8. Staff training is needed across the local healthcare system to ensure that appropriate patients are streamed to ambulatory care.
9. Comprehensive records must be kept and discharge summaries sent to primary care within 24 hours.
10. Providers must work with commissioners to agree how AEC activity will be recorded, reported and funded.
11. Clear measures must be adopted and monitored to assess the impact, quality and efficiency of AEC.

Referral Process

During opening hours, all medical referrals from primary care are phoned through to the unit, through a dedicated phone line. These are telephone triaged by a senior nurse and then redirected to the most appropriate location for clinical assessment. A Consultant Acute Physician also carries a dedicated bleep to enable real-time discussion with GP colleagues where it is felt there may be possibility for the patients to be managed via an alternative community/outpatient service.

Referrals from the emergency department or specialist clinics are also telephoned through prior to being transferred to the unit. Outside of opening hours, all referrals from primary care are either discussed with on-call medical registrar or emergency department co-ordinator, following which they present to the emergency department for initial clinical assessment.

Staffing

Between 09:00–17:00 weekdays, the unit is staffed with two registered nurses and two healthcare assistants. After 17:00 and over weekends there is

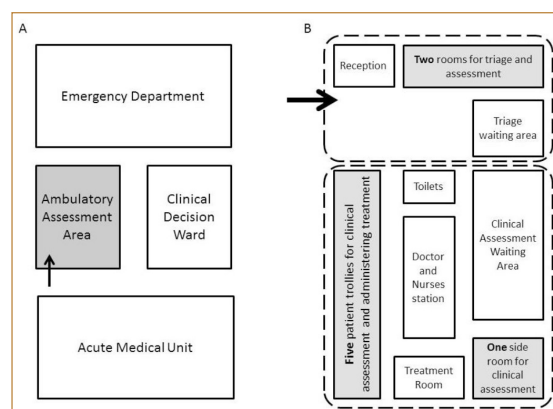


Figure 2. A) The layout of the emergency care centre. B) Layout of the Ambulatory Assessment Area. (Arrow = Main Entrance for General Public to the AAA)

at least one registered nurse and one healthcare assistant.

A dedicated AMU consultant covers the unit from 09:00–20:00 on weekdays and 16:00 on weekends. A dedicated AMU junior doctor based on the unit from 10:00 – 18:00 during weekdays. Outside of these times, the on-call medical junior doctors cover admission on the unit.

Methods

In November 2013 a simple electronic database was designed and launched to track AAA performance. The database was designed on Microsoft Access, and used a simple clinical user interface (Figure 3) for data entry. The data was entered live by the clinical admin staff, and on a monthly basis the raw data were extracted for analysis. Monthly, quarterly and half yearly reports were produced based on the raw data, and distributed amongst the acute medical team.

Prior to 2013, only basic performance information was recorded, manually, in a book.

The screenshot shows the 'Wrightington, Wigan and Leigh NHS Foundation Trust AAA Patient Database' interface. It includes fields for 'Date', 'Time of Arrival', 'PAS No', and 'Time of Departure'. There are dropdown menus for 'Source of Referral', 'Type of Referral', 'First Seen by', 'Senior R/v by', 'System of Diagnosis', 'Outcome', and 'Follow-up'. A text field is provided for 'Diagnosis on Discharge'. At the bottom, there are two buttons: 'Next Patient' and 'Save and Close'.

Figure 3. The clinical user interface for the AAA database which was utilised for data entry.

Can Ambulatory Emergency Care have a positive impact on acute services?

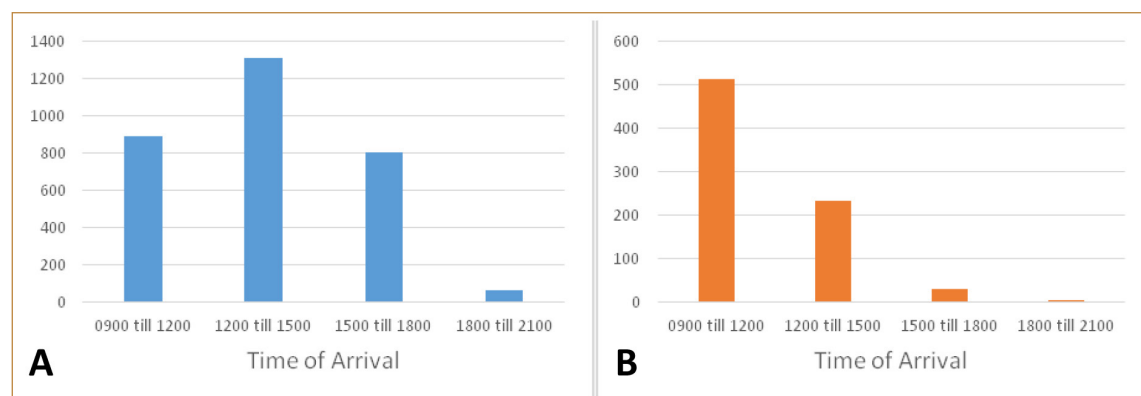


Figure 4. New patients (A) and Review patients (B) seen in AAA over 12 months differentiated by time of arrival.

Hence, there is minimal comparable information prior to introduction of the database. This article summarises AAA performance over 12 consecutive months in 2014.

Results

Patient Demographics

Over the period of 12 months, 3859 patients were seen in AAA. Of these 3848 (99.7%) had a complete

dataset. 11 patients did not have an accurate time of discharge, hence were excluded only from analysis related to length of stay in AAA.

Of the 3859 patients, 3077 (79.7%) patients were new referrals. 72.5% were referred from primary care and 21.3% from the emergency department. This equates to approximately 18% of all new medical referrals over the 12 month period. The remaining 782 (20.3%) patients, were patients brought back for a consultant review

Figure 5. Tables for the top 20 presentation seen in AAA for both new patients and review patients. Which account for 85.6% of the new patients and 81.0% of the review patients.

New Patients - Reason for presentation	n	Review Patients - Reason for Presentation	n
Chest Pain	649	Review of cellulitis	145
DVT or Suspected DVT	340	Chest Pain - review of symptoms	68
Shortness of breath	325	Unwell - review of symptoms	47
"Generally Unwell"	211	Review of venous doppler for suspected DVT	38
Headache	161	Review of shortness of breath	38
Pulmonary embolism or suspected pulmonary embolism	124	Administration of intravenous antibiotics	38
Stroke/TIA or Limb weakness	102	Review of INR	36
Cellulitis	101	Repeat bloods to review anaemia and/or administration of blood transfusion	31
Anaemia	101	Headache - review of symptoms	28
Abnormal blood results including electrolytes	98	Repeat blood tests	26
Pneumonia and/or lower respiratory tract infection	88	Pneumonia/LRTI - review of symptoms	24
Suspected atrial fibrillation and/or Palpitations	67	PE or Suspected PE - review of CTPA results	17
Dizziness	45	Reason for attendance not recorded	17
Hypertension	43	CT/MRI Scan or review of results	16
CT guided biopsy and pleural procedures	43	Repeat blood test for abnormal electrolytes	15
Exacerbation of COPD, asthma and bronchiectasis	36	Repeat CXR	14
Ascites	29	AF and/or Palpitations - review of symptoms and/or test results	11
Abdominal and/or epigastric pain	28	Rash - review of symptoms	10
Rash and/or allergic reaction	22	Abdominal pain - review of symptoms	8
Collapse of unknown cause	21	Review of hypertension	7
Total	2634	Total	634

Can Ambulatory Emergency Care have a positive impact on acute services?

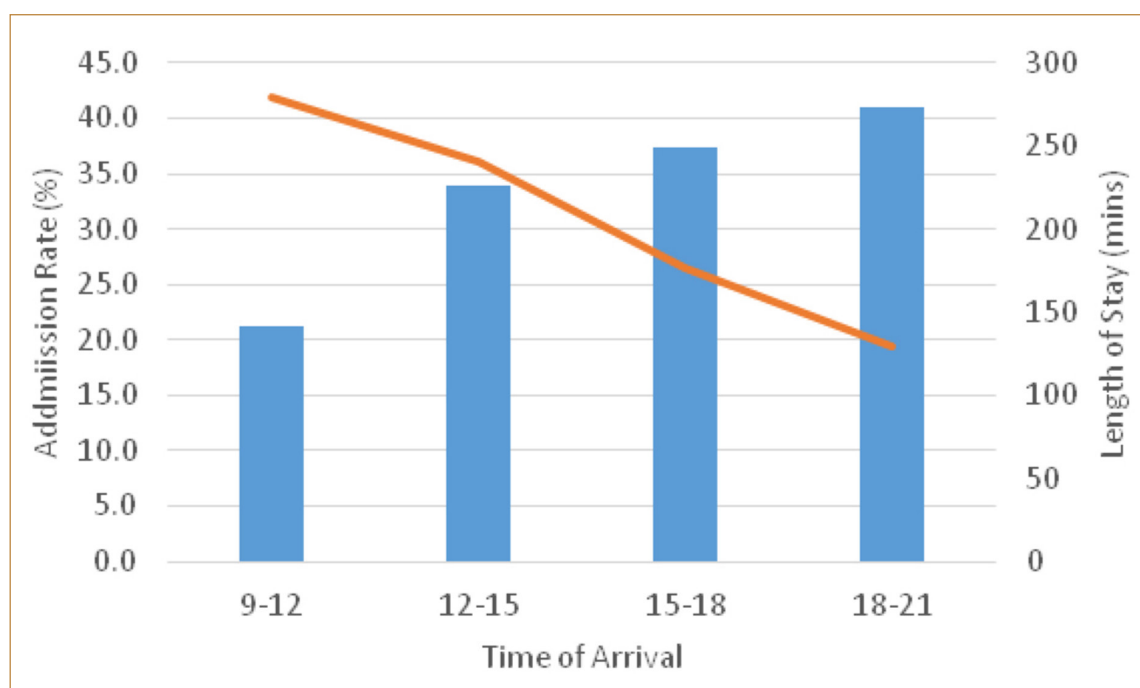


Figure 6. Admission rates (bar) and average length of stay (line) according to time of arrival on AAA

following a recent AAA attendance or hospital discharge.

Of the new patients seen in AAA, 98.0% arrived between 0900 and 1800 hours, with a surge of admissions between 1200 and 1500 hours. The surge is associated with GP referrals that were made to AAA during the morning. 95.7% of follow-up patients arrived to AAA before 1500. (Figure 4)

The top 20 reasons for presentations account for over 80% of all attendances. The top 3 reason for attendance for new patients were chest pain, suspected deep vein thrombosis and shortness of breath. The top 3 presentations for review patients were review of symptoms secondary to cellulitis, chest pain and patient who presented “generally unwell”. (Figure 5)

2157 of 3077 (70%) of patients were initially clerked by a junior doctor in AAA, the remainder were seen directly by a specialist registrar or consultant on arrival to AAA. 99% were reviewed by a consultant prior to leaving AAA. 95% of review patients were seen by either a specialist registrar or consultant prior to leaving AAA.

The mean length of stay for all patients seen in AAA was 220 minutes. The mean length of stay was 65 minutes longer for new patients than review patients. In total 779 patients (20.2%) of patients were admitted to hospital for ongoing treatment and/or investigations. Hospital admissions rates were comparable if patients were referred to AAA from A&E (22.3%) or GP (24.5%). Only 6.6% of review

patients required hospital admission for ongoing interventions.

Of the 3080 patients discharged home, 3034 (98.5%) of patients had a documented follow-up decision in their notes. 46.2% (n=1403) of patients seen in AAA, were either brought back for review in AAA or referred on to a specialist clinic. The remainder of patients were discharged home with either GP follow-up (14.2%) or no planned follow-up (39.6%).

Patients arriving in AAA later in the day are more likely to be admitted to hospital for ongoing treatment. Patients arriving after 1500 are nearly twice as likely to be admitted when compared to those presenting to AAA before 1200. The correlating decreasing length of stay through the day is a reflection of earlier admission decisions. Earlier admission decisions are made, as there can prolonged waits for investigation results or delays in reactivating the patient’s social services support to facilitate same-day discharge. (Figure 6)

Monthly Variance

On average 321 patients were seen per month (256 New, 65 Reviews). However, there was monthly variance. Over the period of February to August the average dropped to 266 patients (216 New, 50 Reviews). This drop in attendances co-incided with AAA being utilised as a bedded medical outlier ward, with ambulatory services being provided from a secondary temporary location geographically distant from the Emergency/Acute

Can Ambulatory Emergency Care have a positive impact on acute services?

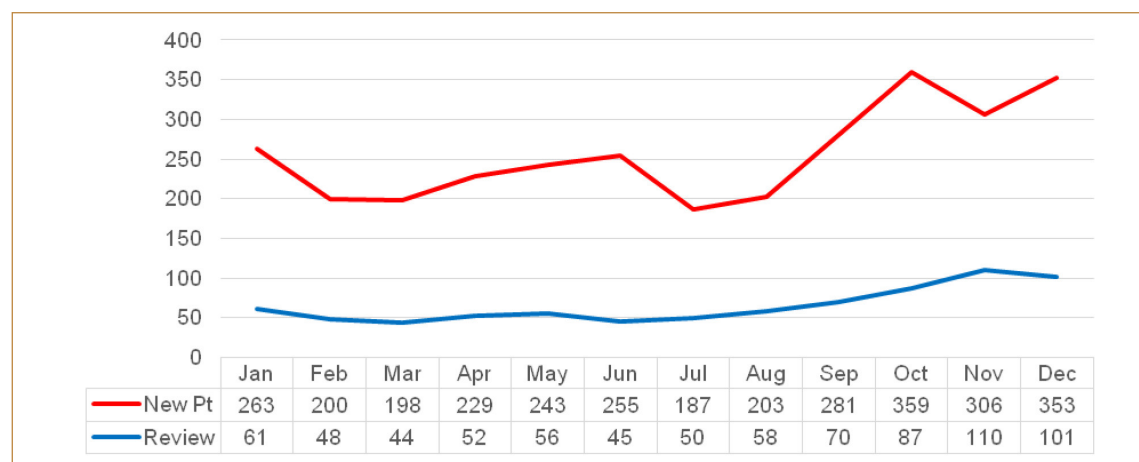


Figure 7. Line chart showing the number of monthly attendances to AAA of new review patients over 2014.

areas of the site. AAA moved back to its dedicated area at the end of September 2014. Subsequently over the last three months of 2014, on average 438 patients (339 New, 99 Reviews) were seen monthly. This illustrates the importance of co-location of ambulatory care service with the Emergency Department and AMUs. (Figure 7)

Although chest pain was the most common reason for new patients presenting, it was the 9th highest category for admission rate (16.5%). The presentations with the highest admission rates for new patients were stroke, “generally unwell”, pneumonia and cellulitis. Conversely patients who presented with suspected deep vein thrombosis had the lowest admission rate (2.6%). (Figure 8)

The overall discharge rate for all review patients seen was 93.3%. This was comparable with the top 5 reasons for attendances for review patients, which

had a discharge rate ranging between 92.1% and 100%. (Figure 9)

Impact on Emergency Department Targets

2014 has been a challenging year for performance nationally in emergency departments (ED), which includes Wrightington, Wigan and Leigh NHSFT (WWL.) Nationally, the 95% 4 hour performance target was achieved in only 22 of the 53 weeks. At WWL, ED performance met the 95% standard in 25 of 53 weeks. From the beginning of October 2014 (week 39), national ED performance failed to meet the 95% standard for 14 consecutive weeks, with week by week deterioration of performance. Over the same time period WWL met the 95% standard for 10 of the 15 weeks. To assist in coping with the significant demand on acute services, during this time period, there was an increased emphasis on

Figure 8. Admissions rates according to presenting complaint for new patients in the AAA.

Presentation	Admitted	Discharged	Admission %
Stroke/TIA	45	57	44.1
“Generally Unwell”	81	130	38.4
Pneumonia/LRTI	30	58	34.1
Anaemia	31	70	30.7
Cellulitis	28	73	27.7
SOB	83	242	25.5
Headache	32	129	19.9
Chest Pain	107	542	16.5
PE or Suspected PE	15	109	12.1
DVT or Suspected DVT	9	331	2.6
Dizziness	3	42	6.7

Figure 9. Top 5 reasons for presentation for review patients, with associated discharge rate.

Presentation	Admitted	Discharged	Discharge %
DVT or suspected DVT	0	38	100
Cellulitis	4	141	97.2
Chest pain	3	65	95.6
“Generally Unwell”	4	47	92.2
Shortness of breath	3	35	92.1

Figure 10. Number of Acute Medical Admissions by Financial Quarter at WWL NHSFT.

Financial Quarter	Acute Admissions
April – June 2014	6009
July – September 2014	5,558
October – December 2014	5,597

Can Ambulatory Emergency Care have a positive impact on acute services?

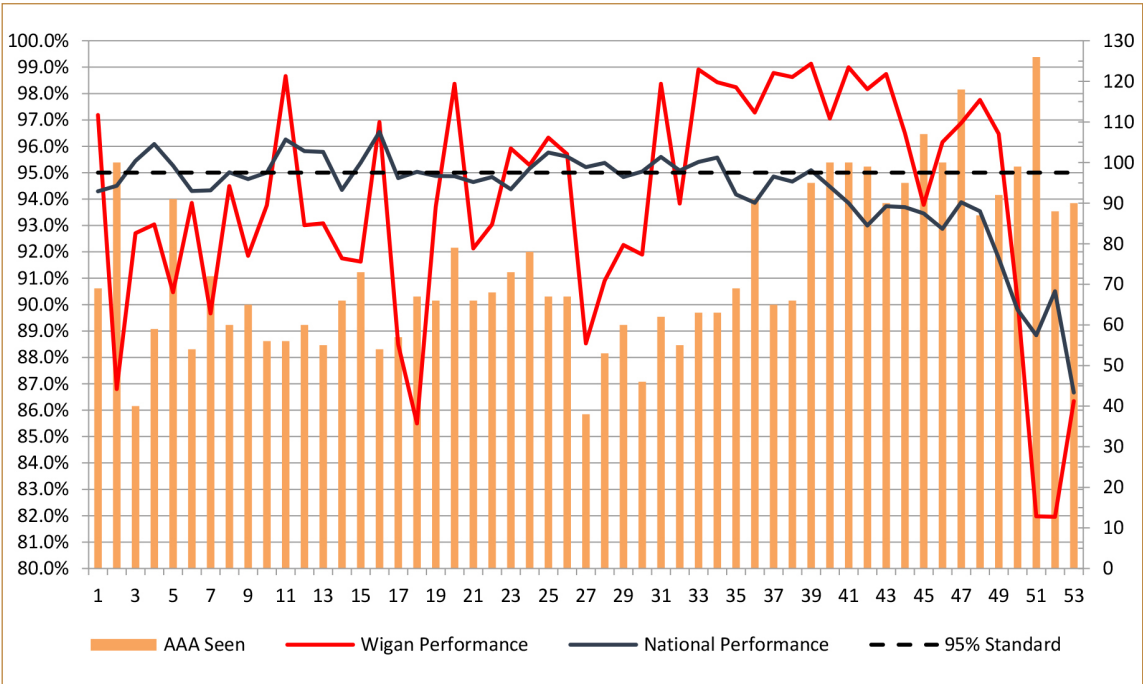


Figure 11. Chart correlating percentage of patients seen, treated and transferred from RAEI ED in under 4 hours (red line), with weekly national ED performance (blue line) and total number of patients seen in AAA.

utilising AAA solely for the provision of ambulatory services. This shift in priorities helped accommodate increased attendances in AAA. Prior to week 39, on average 64 patients were seen in AAA per week. After week 39, this increased to 100 patients per week, equating to a relative increase of 56.3%. (Figure 15)

Between the months of February 2014 and August 2014, the ambulatory care unit had been relocated to a different area of the hospital due to the clinical area being escalated with inpatient beds for capacity after winter. During that period, the number of breaches of the 95% target observed in the Emergency department were raised, but there was a corresponding decrease and improvement in ED performance when Ambulatory had been relocated to its “normal” location, co-located adjacent to the Emergency Department. The number of medical admissions also reduced by

approximately 412 patients and this effect continued to March 2015, as ambulatory activity also showed a corresponding increase. The authors feel that this supports the utilisation of a co-located ambulatory unit to significantly contribute to ED 95% target performance and admission reduction. This performance is summarised in Figures 10 and 11, below.

Patient Satisfaction

Our ‘friends and family’ feedback has been excellent, with greater than 90% of patients reporting that they would be either “likely” or “extremely likely” to recommend the unit to Friends or Family for treatment (figure 12). Examples of quotes from patients who were treated in the unit last year include: “Pleasant, friendly staff. Comfortable area. Good level of care provided” and “ The staff and

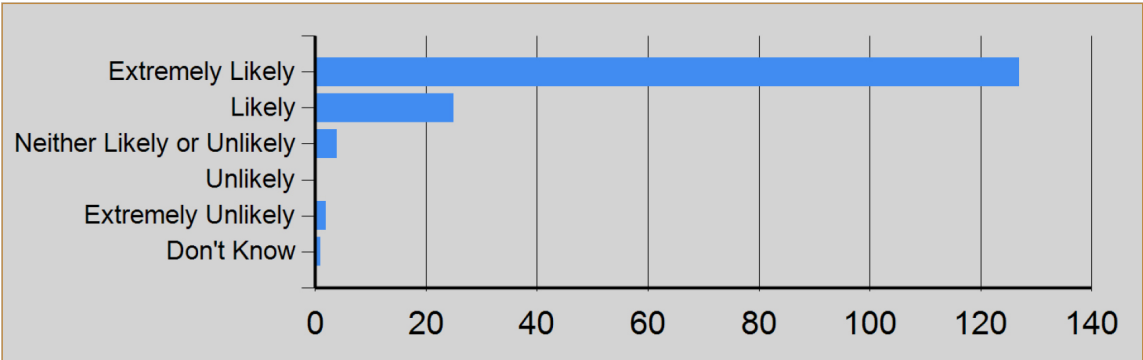


Figure 12. Number of patients completed Patient feedback survey and likelihood of recommending the service (2014.)

Can Ambulatory Emergency Care have a positive impact on acute services?

doctors explained everything to us and were very caring.”

Conclusions

Ambulatory care is already well established in many AMUs across the UK. Analysis of our data over 12 months has demonstrated that a large proportion of patients can be safely and effectively managed in an ambulatory setting and this may have contributed towards our a Trust's achievement of emergency department access targets. Patient satisfaction with the service is high.

We would suggest an ambulatory unit functions for 12 hours a day from 9am until 9pm. This enables the unit to have significant activity for

the management of patients returning for early clinical review in the morning, and then allows the utilisation of the unit for the management of new patients referred that day, peaking in the early/mid-afternoon. We now staff our ambulatory unit with a 2nd Acute Physician from Monday-Friday between 12-4pm to ensure that we have adequate staffing to prevent delays in treatment at the peak referral times.

Acknowledgments

Sr D Hallam, L Crampton

Conflict of interest

Nothing to declare.