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Testing the AMB score – can it distinguish patients who are suitable for ambulatory care?

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ABSTRACT

The Royal College of Physicians' *Acute care toolkit 10* has recommended the use of the AMB score as an aid to determining patients suitable for ambulatory care. As this score has only been previously validated in one centre, the present study calculated the score of 200 patients referred to the medical take to see if it successfully identified patients who had a length of stay of less than 12 hours. In our test centre, the score was found to have a reduced sensitivity compared with the original centre (88 vs 96%) and a positive predictive value of 39%. Therefore in our hospital this was not a useful scoring system, and other trusts need to be aware that the AMB score may not be as effective as the original study suggested.

KEYWORDS: AMB score, ambulatory care, medical take

Introduction

In 2007, the Royal College of Physicians (RCP) defined ambulatory care as 'clinical care which may include diagnosis, observation, treatment and rehabilitation, not provided within the traditional hospital bed base or outpatient services and can be provided across the primary/secondary interface'.[1] Its use has been expanding ever since as a method of dealing with increased numbers of emergency admissions, while also improving patient experience and outcomes. The *Directory of emergency ambulatory care for adults* is now on its third edition,[2] the first Annual ambulatory emergency care conference took place in October and the Royal College of Physicians released *Acute care toolkit 10* on ambulatory care last year (Table 1).[3]

Many hospitals have set up ambulatory emergency care (AEC) centres separate to their acute medical admissions units to manage these patients. One of the key requirements is therefore to identify which patients can be safely managed as ambulatory care patients, ideally before they are admitted to the hospital, so they can be sent to a different part of the hospital. To do this, one hospital developed the AMB score in 2010, and then validated/altered it slightly in 2012. The score determines seven variables available prior to a patient's arrival to determine a value. The original study assigned a score between 0 and 7 for GP referrals and a score of 6 or 7 was suggestive of suitability for ambulatory care (discharged within 12 hours vs admitted for more than 48 hours).[4] The later study used additional weighting on some of the variables to develop a score between –1 and 8 and included A&E referrals; where the score was 5, patients were suitable for ambulatory care.[5]

The AMB score is currently recommended as an aid to streamlining patients in the RCP's *Acute care toolkit 10*, stating 'trusts using the AMB score have reported up to 90% accuracy

Table 1. AMB score.[3]

Parameter	Score
Gender	
Female	0
Male	–0.5
Age, years	
<80	0
≥80	–0.5
Access to transport	
Yes	2
No	0
Will likely need iv access	
Yes	0
No	2
Acutely confused	
Yes	0
No	2
NEWS	
0	1
≥1	0
Discharged last 30 days	
Yes	0
No	1

If the AMB score is ≥5 consider ambulatory care.

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in patient identification for AEC'.[3] Despite this, the 'trusts' quoted was actually the same Trust which validated the score, and no other publications have tested the validity of this scoring system in other trusts. Many hospitals have however adopted this scoring system.

The aim of this audit was therefore to assess if the AMB score can be used in other trusts to predict which admissions are likely to be discharged in under 12 hours and can be sent to a separate AEC.

Methods

In total, 200 referrals to the Medical Admissions Unit in Musgrove Park Hospital, Taunton, were reviewed retrospectively to calculate an AMB score over different times and days of a three-week period. The unit does not have a separate ambulatory care unit but does have a specific junior doctor and consultant running a clinic with the aim of identifying patients suitable for discharge the same day, and with the option of reviewing them on subsequent days, similar to many ambulatory care centres. Data were collected to see if they had a length of stay of less than 12 hours, 12–48 hours or more than 48 hours, as well as the referring source and time of arrival onto the admitting unit. Sensitivity, specificity and positive predictive values were calculated using an AMB score of 5 or greater as a predictor of discharge within 12 hours (as many AECs close overnight) and also for a predicted length of stay of less than 48 hours (to mimic a separate short stay ward).

Results

Of the 200 referrals, 60% were from A&E, 37.5% from GPs and the remaining 2.5% were direct from clinics/other specialties. The AMB score and length of stay is shown in Table 2.

50% of patients had an AMB score of 5 or more. If this was used as a predictive test to determine whether a patient will go home within 12 hours, it had a sensitivity of 88%, specificity of 69%, positive predictive value of only 39% and negative predictive value of 95% (Table 3).

If the score was used to identify patients for a short stay, ie stay less than 48 hours, it was also not effective (sensitivity 70% and specificity 69%). The data were reviewed to see if A&E patients were less suitable patients to use the AMB score, however, the proportion of patients with an AMB score of 5 or more was the same as those patients referred by a GP. If the sample size was restricted to only patients who presented between 09:00 and 17:00 (the hours some ambulatory units may open and take referrals), the type of patient referred did not change. This group of patients was made up of 45% A&E referrals and 51% GP referrals, and 56% had an AMB score of 5 or more, however the sensitivity, specificity or positive predictive value did not improve particularly (83, 56 and 48% respectively).

Discussion

This study found that the AMB score did not predict which patients would be discharged within 12 hours and be suitable for ambulatory care. This probably reflects differences in the referring population and in-hospital methods of managing patients. For example, Taunton has one of the fastest growing elderly populations, and 38% of our patients are aged over 80 years. When the Taunton population (2014) is compared with the cohort in the original study (2010), patients at the Royal Glamorgan Hospital were younger, with a higher proportion of females and patients with a MEWS score of 0.

There are also likely to be differences in how hospitals manage the same patients. For example, patients who have a transient ischemic attack (TIA) are not referred to the medical take, but instead directly to a daily TIA clinic, and there is a community pathway for GPs to directly access US Doppler slots so they do not need to refer patients with deep vein thrombosis to the medical take. In some hospitals, patients suitable for

Table 2. AMB scores of patients admitted to the Medical Admissions Unit in Musgrove Park Hospital, Taunton.

AMB score	Patients, n	Length of stay, hours		
		<12	12–48	>48
–1	2	0	0	2
–0.5	1	0	1	0
0	4	0	1	3
0.5	11	0	2	9
1	4	0	1	3
1.5	7	1	2	4
2	5	0	1	4
2.5	17	1	4	12
3	9	0	0	9
3.5	8	0	0	8
4	11	0	3	8
4.5	23	3	7	13
5	18	1	6	11
5.5	8	1	2	5
6	7	4	2	0
6.5	30	13	8	9
7	16	10	1	5
7.5	10	5	4	1
8	9	4	3	2

Table 3. AMB score and discharge – sensitivity and specificity

AMB score	Discharged <12 hours	Discharged >12 hours
5–8	38 True +ve	59 False +ve
<5	5 False –ve	97 True –ve

ambulatory care may be referred as part of a medical take. As ambulatory care pathways become more established there may be less referral to the traditional medical take and more to the alternatives, if they are made accessible to outside referrers. This will reduce the sensitivity of the AMB score to identify suitable patients.

The AMB score works well in the Royal Glamorgan Hospital with a sensitivity of 96% and specificity of 62% and the author has very generously invited others to use and adapt the score as they see fit, however, the current study highlights that the AMB score may not identify patients to these standards in other hospitals. Perhaps the more useful principle for promoting ambulatory care is to assume that all patients are suitable for ambulatory care until proved otherwise. As ambulatory care becomes more established and referrers more aware of it, it will be interesting to compare the AMB score with a simple question for the referrer – do you think this patient is suitable for ambulatory care? ■

References

1 Acute Medicine Taskforce. *Acute medical care. The right person, in the right setting – first time.* London: RCP, 2007.

2 NHS Institute for Innovation and Improvement. *Directory of ambulatory emergency care for adults,* 3rd edition. Leeds: NHS Improving Quality, 2012.

3 Royal College of Physicians. *Acute care toolkit 10: ambulatory emergency care.* London: RCP 2014.

4 Ala L, Mack J, Shaw R, Gasson A. The AMB score: A pilot study to develop a scoring system to identify which emergency medical referrals would be suitable for ambulatory care management. *Acute Med* 2010;9:141.

5 Ala L, Mack J, Shaw R *et al.* Selecting ambulatory emergency care (AEC) patients from the medical emergency in-take: the derivation and validation of the Ab score. *Clin Med* 2012;12:420–6.

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