

'State of the Nation' - The Society for Acute Medicine's Benchmarking Audit 2013 (SAMBA '13)

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Abstract

Background: Benchmarking is important to improve quality of care.

Aim: To audit the performance of Acute Medical Units (AMUs) against the clinical quality indicators published by the Society for Acute Medicine (SAM).

Methods: 24-hour data collection on the 20th of June 2013 with follow-up data at 72 hours.

Results: 43 units submitted data on 1425 patients. 76% of patients had early warning scores recorded within 30 minutes of admission, 95% of patients had been seen by a competent decision maker within four hours. 79% of patients were seen by a consultant physicians within the appropriate period of time.

Conclusion: The difference in compliance with quality standards between UK units opens opportunities for learning. The reasons why some units perform better than others require further investigation.

Keywords

Hospital, Emergency admission, Death, Quality of Care, Early Warning Score.

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Key Points

1. Only 47% of patients had evidence of care compatible with three central SAM quality indicators.
2. There remains high variability with regards to care delivered.
3. 59% of patients were seen on the post take ward round by Acute Physicians.

Background

Standards of care in acute hospitals have been under extreme scrutiny in 2012/13 in reports by Keogh¹, Berwick² and the Mid-Staffordshire enquiry³. Acute Medical Units (AMUs) have been developed to assure safe care of a high standard for patients presenting with emergency or urgent medical problems. AMUs have, however, evolved in different ways according to local pressures and requirements and there is wide variation between units. SAM has developed clinical quality indicators to focus AMUs on aspects of the care they deliver which translate most directly to the patient experience but there has been no reliable data to measure AMUs against these standards and no mechanism to identify and spread good practice.⁴

SAMBA 2012 was the first time this had been attempted⁵. We used a simple methodology based on the ease of data collection to encourage participation: data was collected on a single weekday in the quiet month of June. Contributing units provided summary data that demonstrated that performance against a set of national standards was very variable between units.

Using comments and constructive criticism from almost 100 colleagues throughout the UK involved in SAMBA 2012, we developed the methodology to allow more complete performance analysis and a simplified data collection in order to try to improve participation.

Methods

Preparation

Members of the SAM research committee modified the SAMBA 2012 data collection form to collect data reflecting the process of care for each individual patient admitted. Acuity data⁶ and a pictorial clinical frailty score⁷ were added to gain a more accurate picture of the patients presenting to acute medical units. The form was simplified and an excel spreadsheet designed to help standardise data formats and allow central summarisation and analysis. The basic set-up of the study remained unchanged to SAMBA 2012 to allow comparisons where possible. The data collection form was piloted in a few centres and modified accordingly.

In addition an on-line survey to collect staffing levels was designed and piloted.

*'State of the Nation' - The Society for Acute Medicine's Benchmarking Audit 2013 (SAMBA '13)***Recruitment of centres**

All hospitals participating in an acute "unselected" medical take were invited to participate in SAMBA '13. The research committee distributed 'flyers' and presented the study outline at the Society for Acute Medicine conference in May 2013. There were a number of e-mails to members of the Society for Acute Medicine to raise awareness of the event.

Participating sites submitted an online questionnaire prior to the audit day outlining their capacity and staffing levels. Once sites had completed the survey the relevant documentation for the audit was made available on the website of the SAM.

Patient selection

Inclusion: Patients aged 16 or above who were seen for admission or assessment on an Acute Medical Unit over a 24-hour period from midnight to midnight on the 20th June 2013.

Exclusion: Elective patients or day-case patients for technical procedures such as endoscopies or biopsies. In some hospitals the AMU is a virtual space in the Emergency Department (ED) with the Acute Team operating side-by-side with the Emergency Physicians. For this scenario we suggested auditing care in all patients who were referred to Medicine for an inpatient opinion (as opposed to an urgent outpatient appointment).

Data collection

Sites were advised to collect data as early as possible (ideally within 12 hours of admission of each patient being audited). Each site identified a lead consultant and recruited members of their team for data collection. Data collectors were advised to be free from other clinical duties for the time period of data collection to enable real time data collection wherever possible. Data was collected from clinical records, with the follow-up and discharge data collected from local patient administration systems. Data entry was input into an anonymised Excel spread-sheet. This was then returned to the Society for Acute Medicine research committee members via a secure NHS e-mail address.

Standards surveyed

The audit was organised around compliance of the three main areas of performance:

- Clinical Quality Indicators for Acute Medical Units (SAM 2011)⁴
- NICE CG 50: Severity of illness assessments⁶
- Standards set out in national guidelines for specific conditions: Imaging for pulmonary emboli,⁸ endoscopy for suspected upper gastro-intestinal bleeding⁹ and imaging for strokes.¹⁰

Ethics

The need for ethics approval was waived as the limited data items requested were in line with national

guidelines for audit. The North-West Wales Ethics Committee approved this approach in 2012.

Funding

No dedicated funding was available for this audit.

Statistics

Statistics were calculated using SPSS Statistics Version 20.

Results

Forty-three units from the UK collected data from 1425 eligible patients. 38 units completed the on-line staffing and capacity survey. The mean number of admissions in each AMU was 33 patients (median 30, range 13 - 86). The mean age of admissions was 65 years and 54% of patients were female. 56% of patients were admitted from Emergency Departments and 38% from General Practice. 91% of patients were admitted from their "own home" and 6% from care homes.

15% of all admissions had been admitted to hospital for the same or another condition in the previous 28 days. The number of patients admitted per hour varied greatly and peaked at 11:00 and 18:00 o'clock.

Using the simple Clinical Frailty Scale,⁷ 31% of patients were at least "mildly frail" (score 5-9 inclusive). Converting actual observations to the National Early Warning Score and setting the cut off for triggering response to the original total score of 5 or 3 on any individual component we found that 22% of admissions reached this threshold. As the questionnaire did not include AVPU this may underestimate the total to a small degree but few patients scored on this aspect of the score in previous similar work¹¹.

Unit and team size

AMUs had on average 43 beds (n=38) and a further 17 Short-stay beds (n=18). Level 2 care could be provided in 3 beds. 27 units had ambulatory care, either as a dedicated unit or as part of the AMU.

The average medical team for a 24-hour period consisted of 2.9 consultants, 2.5 registrar-grades (one at night), 4.8 SHO-grades (1.6 on night) and 2.4 Foundation Year 1 doctors. At night the teams had a median strength of 4 doctors with a mode of 3. The mean size of the nursing team for a 24-hour period comprised 23 members. (1.4 Band 8, 1.8 Band 7, 3.1 Band 6, 7.3 Band 5, 1.8 Band 4, 1.7 Band 3, 5.5 Band 2 nurses). Units had access to three pharmacists, two physiotherapists, two occupational therapists and one social worker.

Clinical Quality Indicators for Acute Medical Units

1. 'All patients admitted to the AMU should have an early warning score (EWS) measured upon arrival on the AMU'.

This indicator is difficult to audit against given the lack of a defined time and the fact that

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patients arrive into different AMUs through a variety of pathways. For the purposes of audit and analysis of submitted data we defined this as a full set of observations within 30 minutes of arrival in hospital. Around this standard there was 88% completeness of submitted data. 76% of patients had complete first observations allowing calculation of an EWS within 30mins of hospital arrival. Trusts' compliance ranged from 27 to 100%. Mean time to first observations was 32mins and the median time 10mins.

2. 'All patients should be seen by a competent clinical decision maker within four hours of arrival on the AMU'.

There was 94% completeness of submitted data for this indicator. 95% of patients' care met this standard with Trusts ranging from 70 to 100%. The mean time to clerking was 1hr 38mins and Trust's means ranged from 29mins to 3hr 32mins. 22% of admissions were clerked in the Emergency Department prior to arrival on AMU though in some hospitals the percentage was as high as 80%. 27% of patients were first seen by a consultant or specialist registrar with Trusts ranging from 0 to 60% (Figure 1).

Though not within SAM clinical quality indicators, time to results does impact on care quality and patient flow. First laboratory tests were available in a mean of 2hr 22mins from hospital admission with Trusts' means ranging from 49mins to 4hr 32mins. For 9% of patients no blood tests were recorded. Chest X-rays were available after a mean of 4hr 34mins with Trusts' means ranging from 1hr 29mins to 18hr 07mins. 36% of patients did not have a CXR recorded.

3. 'All patients should be reviewed by the admitting consultant physician or an

appropriate specialty consultant physician within 14 hours of arrival on the AMU (8 hours if arrival was between 8am 08:00 and 18:00.)'

This indicator was analysed as a composite end-point and was considered "not met" if the patient did not see a consultant prior to discharge either because of senior review by specialty registrar or where patients did not wait in the department. There was 93% completeness of submitted data. 79% of patients' care met the standard with Trusts ranging from 40 to 100%. The mean time to clerking was 6hr 54mins and Trust's means ranged from 3hr 13mins to 12hr 30mins. 7% were not reviewed by a consultant prior to discharge (compared to 9% in 2012.) Of those reviewed by a consultant, 14% of patients were not reviewed within 14 hours of arrival on AMU (compared to 33% in 2012) and 14% of patients arriving from 08:00-18:00 were not reviewed within 8hrs (Figure 2).

59% of patients in the audit had their first consultant review from an Acute Physician with Trusts ranging from 0 – 100%.

We had sufficient data in 79% of patients' admissions to analyse all three SAM quality indicators. For these patients, 59% met all three standards. As the clinical quality indicators imply that data to support these standards should be recorded and available then outcomes should really be recorded using total eligible admissions rather than those for whom sufficient data was collected as the primary outcome. On this basis 47% of patients' care met the first three of SAM's clinical quality indicators with Trusts ranging from 0 – 87%. Eight units achieved this in over 70% of patients admitted (Figure 3).

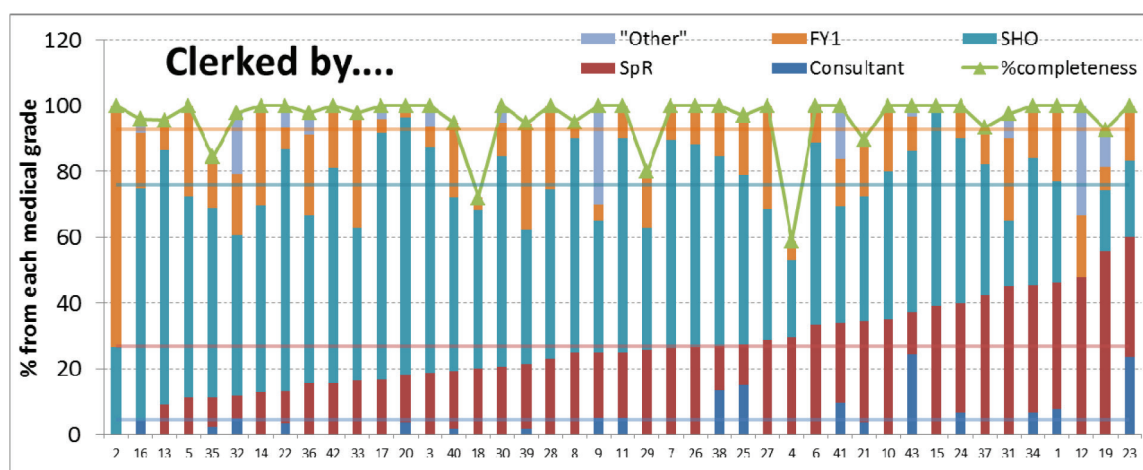


Figure 1. Clerking by members of the medical team.

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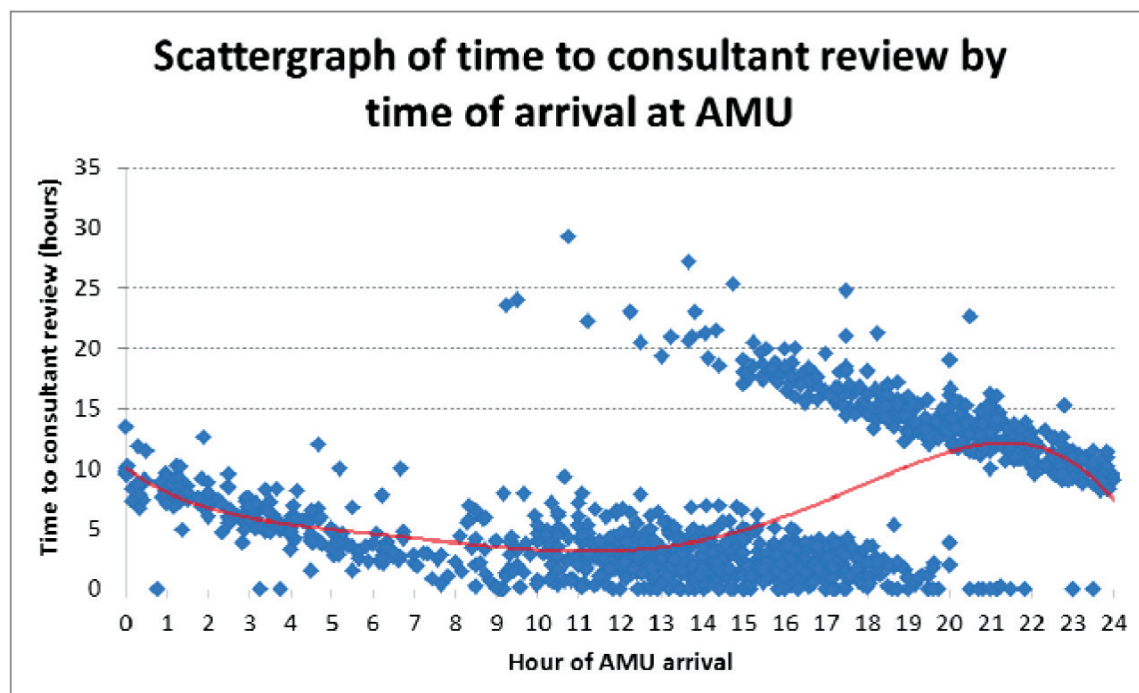


Figure 2. Biphasic consultant review spread reflects the chance of a patient coming in late afternoon / early evening not seeing a consultant until the next day.

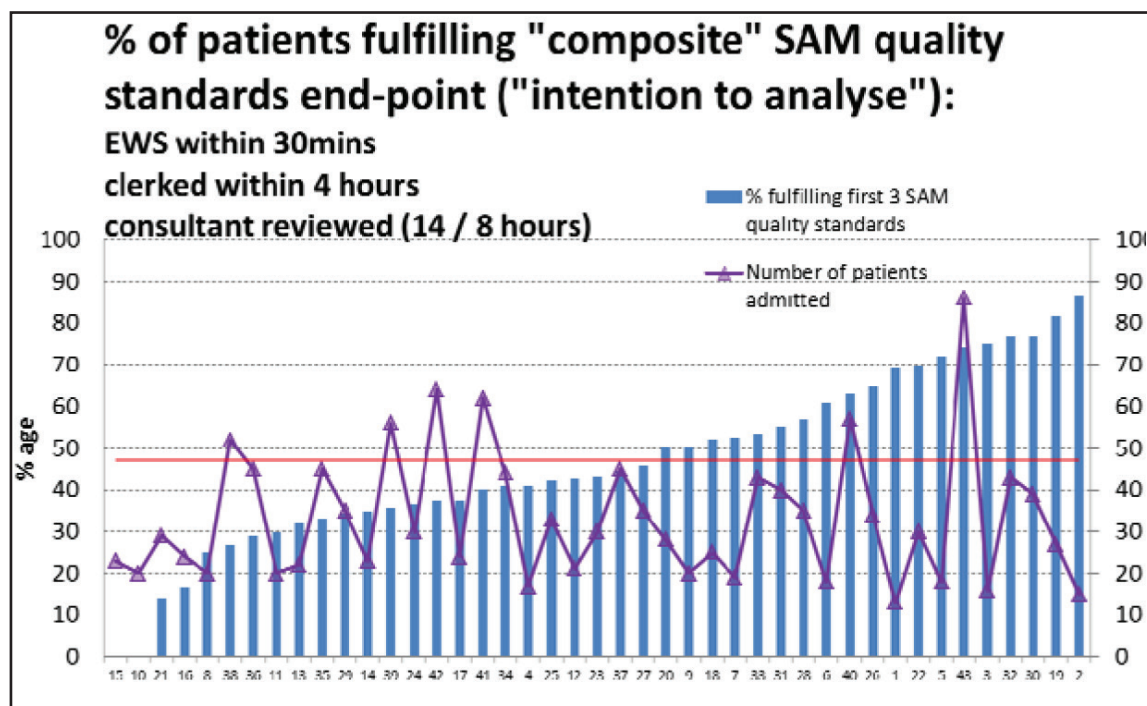


Figure 3. Summary statistics of compliance with the three quality standards: Early Warning Score (EWS) within 30 minutes, clerked within four hours and reviewed by a consultant within the indicated time limits.

Ambulatory Care

11% of patients were seen first in ambulatory care and 8% of patients were seen exclusively in ambulatory care with trusts ranging from 0 to 40%.

Other Outcomes

56 patients were diagnosed with strokes, of these 42 had imaging of the brain within 24 hours of admission. 64 patients had suspected pulmonary

emboli, of these 38 had CTPAs and 5 Ventilation-Perfusion Scans within 24 hours. 42 patients had a suspected upper Gastro-Intestinal bleed, of these 14 had an endoscopy within 24 hours.

Transfers of Care at 72 hours

Within 72 hours of admission 40% of patients were discharged directly from AMU with Trusts ranging from 14 to 67%. 46% of patients were transferred to

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general wards, 3% to critical care, 0.4% died and 8% were still on AMU at 72 hours. The mean time to discharge home was 17hr 11mins and the mean time to transfer to a specialty ward was 20hr 44mins.

Discussion

There remains real variation in Trusts' performance against these key clinical quality indicators. Given that only 47% of patients in this audit received care in line with all three of the indicators it is clear that there is work to be done. In real terms AMUs are closest to achieving standard 2 (competent clinical decision maker within 4 hours) and have most work to do on standard 3 (consultant review composite). Encouragingly there are Trusts within SAMBA '13 who met 100% for single indicators. This should allow the identification of units with excellent practice from whom to learn. Where comparison between SAMBA 2012 and '13 is possible (percentage of patients seen within four hours by a competent decision maker, percentage of patients reviewed by a consultant and percentage reviewed by a consultant within 14 hours) all showed improvement.

There remains enormous variation between Trusts over all of the performance indicators studied. This variation is part of clinical practice and will have multiple causes from clinical reasons applicable to the particular case in question to systemic differences in the set up of local services. The more important and more challenging question is how we use data to help drive local improvement in our own units¹². SAMBA '13 helps in identifying our AMU's individual weaknesses by bench-marking against the data set and allowing appropriate focus of attention on weak areas of practice. In addition we hope that SAMBA '13 will facilitate shared learning and we intend to use the SAMBA '13 data to publish a number of case studies from the Trusts that functioned well in certain areas on the day of the audit.

Our data represents only a tiny fraction of the work of AMUs in the UK. Despite efforts prior to the launch of SAMBA '13 and a 43% increase in returns from 2012, only about a quarter of all UK units participated. There is always the suspicion that the participation is skewed towards better organised or higher performing units already open to the culture of constant evaluation and service improvement but this is difficult to prove. Data collection limited to a single day has obvious flaws. The day might not be typical of local service delivery because of staff sickness, bed pressures, seasonal variation, computer system failures etc. The completeness and accuracy

of the data as a representation of Trust or Acute Medicine's performance has to be balanced, however, with the practicality of collecting such information. We would obviously encourage all AMUs to monitor this sort of data as part of their performance reporting and in fact have already received correspondence from teams wishing to use the downloadable SAMBA 2013 data collection forms to do this. Given the time commitment to national data collection and analysis it remains impractical to run the study either more regularly or over longer time periods. We believe that the "snapshot" of Acute Medicine that we have achieved is still likely to be representative for the specialty as a whole and that the results from SAMBA '13 published here will be the benchmark for the next 12 months.

The next priority will be to format individualised Trust feedback reports which enable units to highlight and address areas of concern and to celebrate excellent performance and improvement. This would be useful in building business cases for service improvement and in appraisal portfolios.

SAMBA '13 has a greater granularity of patient data allowing case-mix comparisons and basic information through the parallel survey on the staffing and capacity of the contributing units. We intend to look at how these factors influence compliance with SAM's clinical quality indicators in a separate paper.

Research into better service delivery in unscheduled care is urgently needed. The SAMBA format allows us to highlight good practice at the front door. While we strongly believe that the delivery of care according to the clinical quality standards, against which we audited, has clear patient benefits, we are aware that we have so far not harvested patient feedback as part of SAMBA. The Research Group of the SAM would like to hear ideas on how this can be done in a meaningful way to facilitate the identification of service models that deliver better care for patients.

Finally we would like to express our gratitude to those clinicians who have given their own time to collect and collate data for this audit. It is this demonstration of commitment to improving the care they deliver on a daily basis to their patients which drives Acute Medicine forwards.

Conflict of interest

This study was funded entirely by the authors and they have no conflict of interest with any third party..

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