Improving Acute Asthma Care at the Royal Glamorgan Hospital - An Audit Cycle

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Abstract

Introduction: Many admissions for acute asthma are avoidable. Care following admission with acute asthma was audited at the Royal Glamorgan Hospital, South Wales, simple changes were introduced, and a re-audit was conducted.

Methods: Adult admissions for acute asthma were analysed for an initial 2 month period followed by the introduction of changes in practice, then re-audited for a 5 week period.

Results: In the initial audit checking of inhaler technique, addressing of compliance issues and follow-up arrangements were poor performance areas. The Respiratory specialist nurse referral system was altered, increasing the percentage of patients seen by a Respiratory specialist nurse from 50% to more than 90%. Performance subsequently improved in all previously poor performance areas at re-audit.

Conclusion: Simple interventions, including an alteration in the Respiratory specialist nurse referral system, led to an improvement in acute asthma care.

Introduction

Asthma affects over 4 million adults and causes over 1000 deaths per year in the United Kingdom[1]. Up to 75% of hospital admissions and 90% of deaths from asthma are thought to be avoidable[1]. Whilst prescription of appropriate treatment is important, effects are often suboptimal due to poor inhaler technique or poor compliance with treatment. In recent years there has been an increased emphasis placed on assessment of inhaler technique, addressing issues with compliance, provision of written action plans and early follow-up, all of which may lead to improved outcomes[2]. Many institutions have introduced Respiratory specialist nurses who specifically address these issues.

Here we report a full audit cycle analysing adult admissions with acute asthma at the Royal Glamorgan Hospital, South Wales. The aim was to identify poor performance areas, implement changes and re-audit to observe whether the changes had led to improved performance.

Methods

The initial audit analysed care of adult patients admitted with acute asthma to the Royal Glamorgan Hospital, South Wales, between 1st September 2009 and 31st October 2009. Patients were identified from a log-book of admissions in the Acute Medical Unit, and from post-take ward round patient lists. Patients were included if a diagnosis of acute asthma was made at the consultant-led post-take ward round. After discharge, case-notes from admissions and follow-up appointments were examined. Data was collected using an extended version of the data collection sheet used for the British Thoracic Society National Adult Asthma Audit, 2009.

The subsequent re-audit used the same criteria and methods to identify and analyse admissions during a five-week period between 17th May 2010 and 20th June 2010. Data was collected focusing on poor performance areas in the initial audit.

Results

Initial audit

Twenty-eight patients were admitted with acute asthma to the Royal Glamorgan Hospital during the initial two-month audit period, with a median age of 43 years (range 19-83) and 61% being female. Twenty-two patients (79%) had either never been admitted due to asthma before or had last been admitted more than twelve months ago. Twenty-six patients (93%) had their peak expiratory flow rate (PEFR) measured prior to the post-take ward round, and all patients (100%) had their oxygen saturations measured, and a arterial blood gas sample was obtained from 5/6 patients (83%) whose oxygen saturations were less than 92%; the remaining patient refused to have an arterial blood gas taken. Systemic steroid treatment was given to 13/28 patients (45%) within one hour, and to 24/28 (85%) within four hours. Fourteen patients (50%) were seen by a Respiratory specialist nurse during admission. Four patients (14%) did not have their PEFR measured in the 24 hours prior to discharge; the remaining patients had 1-2
measurements. Six patients were documented to have been poorly compliant with their pre-admission treatment (21%); the reasons for this were addressed in 1/6 cases (17%). There was documentation of 6/28 (21%) patients having their inhaler technique checked during admission.

Ten patients (36%) had no secondary care outpatient review planned following discharge. Respiratory specialist nurse review (11/28; 39%), respiratory medicine outpatient review (4/28; 14%) and general medicine outpatient review (3/28; 11%) were arranged for the remaining patients. In total, 10/28 patients (36%) had hospital follow-up organised within 4 weeks of discharge. No patients were documented to have received a written action plan.

Changes implemented
Following the identification of poor performance areas in the initial audit, changes were implemented with the agreement of the Respiratory physicians and Respiratory specialist nurses. These included:

1. Active seeking of patients with acute asthma by the Respiratory specialist nurses via daily visits to medical wards, in addition to the previous referral system.
2. Raised awareness amongst Consultants (via email reminder) that all patients admitted with acute asthma should be defined to the Respiratory team and managed on a respiratory ward.
3. Raised awareness of the need to refer all patients admitted with acute asthma to the Respiratory specialist nurses (via email reminder to consultants and ward managers).
4. Discharge check-list posters displayed on the Acute Medical Unit and on the Respiratory wards, emphasising the importance of reviewing treatment prior to discharge, checking PEFR, assessing inhaler technique, addressing compliance issues, arranging follow-up and issuing a written action plan.

Re-audit
Eleven patients were admitted during the five-week re-audit period. The age range was 19-67 years, with 82% of patients being female. Of the nine patients who were admitted for 24 hours or more, eight (89%) were defined to the Respiratory team. Ten patients (91%) were seen by a Respiratory specialist nurse during admission; the remaining patient was admitted and discharged on a weekend, and their details were picked up the following day. All patients had their PEFR measured in the 24 hours prior to discharge, with the number of measurements ranging between 2-4 (vs. 0-2 in the initial audit). Compliance was discussed with 9/11 patients (82%, vs. 21% initial audit), and the reasons for poor compliance were addressed with 9/9 of these patients (100%, vs. 17%). Inhaler technique was checked during admission for 8/11 patients (73%, vs. 21%), and for 10/11 patients at early follow-up appointments within 2 weeks (91%, not previously audited). All documented checks of inhaler technique were performed by Respiratory specialist nurses. Three patients needed revision of their technique, and one patient required an alternative inhaler.

Respiratory nurse review was planned within 2 weeks of discharge for 11/11 patients (100%, vs. 29%). Respiratory medicine review was planned for 4/11 patients (36%, vs. 14%). All patients had some form of secondary care follow-up planned (100%, vs. 64%). Written action plans were given to 9/11 patients (82%) either prior to discharge or at early follow-up (within 2 weeks).

Discussion

Whilst asthma generally responds well to appropriate treatment, acute asthma remains both a common reason for hospital admission and a preventable cause of mortality[1]. In our initial audit, the early management of acute asthma at the Royal Glamorgan Hospital compared favourably to national figures obtained from the British Thoracic Society National Adult Asthma Audit[3]. Oxygen saturations, PEFR and arterial blood gases were measured appropriately, and systemic steroids were given early during admission. However, the latter phase of admission which included checking inhaler technique, addressing issues with compliance, arranging follow-up and providing a written action plan was performed poorly. Good performance in these areas can result in better asthma control and prevent re-admissions[2]. Despite performance in these areas being identified as poor in national audits in 1990 and 1991, things had not improved in 2009[3] where national results mirrored our local experience.

We implemented simple changes at the Royal Glamorgan Hospital after reviewing the results of our initial audit. A review of case-notes revealed that contact with a Respiratory specialist nurse during admission had a positive knock-on effect on other performance areas. Respiratory specialist nurses were more likely to address compliance issues, check inhaler technique and issue written action plans than doctors of any level of seniority or other healthcare professionals. Respiratory specialist nurses were also able to arrange early follow-up within 2 weeks of discharge. A policy was in place at the time of both audits that all patients admitted with acute asthma should be referred to a Respiratory specialist nurse.
Patients were referred by doctors or nurses, by paging, leaving an answer-phone message, or completing a referral slip. However, this policy did not appear to be well-implemented at the time of the initial audit. The changes introduced were therefore focussed on increasing the proportion of patients seen by a Respiratory specialist nurse during admission.

The key change was the introduction of a daily “trawl” of medical wards for asthma patients, alongside the pre-existing methods of referral. A Respiratory specialist nurse would visit each medical ward daily and enquire as to whether any patients with acute asthma had been admitted. This took less than 15 minutes per day, and resulted in the proportion of admissions that the Respiratory specialist nurses were aware of increasing from 50% to 100%. The re-audit confirmed the expected knock-on effect of improving the previously poor performance areas.

In summary, a change in the Respiratory specialist nurse referral system at the Royal Glamorgan Hospital in conjunction with other simple changes resulted in a marked improvement in several parts of acute asthma care. We suggest that other institutions who rely on Respiratory specialist nurses for key areas of asthma care consider introducing a similar system.

References

http://www.asthma.org.uk/wales/index.html
http://www.brit-thoracic.org.uk/Portals/0/Audit%20Tools/AdultAsthmaOverview.pdf
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