

# A multi-centre audit of epistaxis management in England: is there a case for a national review of practice?

A C HALL<sup>1</sup>, H BLANCHFORD<sup>2</sup>, P CHATRATH<sup>3,4</sup>, C HOPKINS<sup>4</sup>

<sup>1</sup>ENT Department, Northwick Park Hospital, London, <sup>2</sup>ENT Department, Freeman Hospital, Newcastle upon Tyne, <sup>3</sup>ENT Department, Queen's Hospital, Romford, and <sup>4</sup>Department of Otolaryngology, Guy's and St Thomas' Hospital, London, UK

## Abstract

**Objective:** The ENT-UK Clinical Audit and Practice Advisory Group initiated a pilot audit to investigate variance in epistaxis management between six units nationwide.

**Method:** All patients with a diagnosis of epistaxis who were admitted for in-patient care at six ENT departments between November 2011 and February 2012 were prospectively enrolled.

**Results:** A total of 166 patients were included in the study. Variance was demonstrated between the six units in a number of the key outcome areas. Twenty-eight per cent of patients were identified as eligible for operative intervention for epistaxis in one unit, compared with only 12.5 per cent in another.

**Conclusion:** There are measurable, patient-relevant outcomes to assess epistaxis management and these can highlight areas of potential improvement. This pilot audit gives a snapshot of modern practice, which shows variance between the six units assessed. A national audit may allow us to improve patient experience and maximise efficiency in delivering emergency care in our most common patient encounter.

**Key words:** Epistaxis; Prevention & Control; Surgery

## Introduction

During the year 2011–2012, epistaxis accounted for 23 235 adult in-patient admissions in England, according to the National Health Service (NHS) Hospital Episode Statistics.<sup>1</sup> This represents 34.5 per cent of all emergency admissions to otolaryngology departments nationwide. At present, no detailed consensus guidelines exist for the management of epistaxis. Hospital Episode Statistics are useful in their provision of demographic details and incidences of medical conditions treated in hospitals within England, but coding discrepancies limit the utility of the data. Unfortunately, they also capture insufficient detail on patient management to identify areas for improvement.

Attempting to further recent local reviews of epistaxis, we sought to evaluate variability in epistaxis management between different units across the country. In the wake of the recent Francis report (Mid Staffordshire NHS Foundation Trust Public Enquiry),<sup>2</sup> audits of current practice remain a vital component of good clinical practice, both for individuals (for the purposes of General Medical Council revalidation) and within professional organisations. Changes in emergency out-of-hours cover necessitated by the European Working Time

Directive can mean that care is now provided by non-ENT trained doctors.<sup>3</sup> Variation in the management of epistaxis patients may be related to factors including local training and equipment availability, geographical area, and out-of-hours staffing. Variation may also reflect differing levels of junior supervision within a department and the level of senior involvement in ward management.

In common with other specialties, we face a political drive to avoid hospital admission where possible. As such, it becomes vital to obtain requisite data to negotiate commissioning of emergency ENT care, placing patient safety at the centre of the decision-making process.

## Materials and methods

Six ENT centres across England were invited by members of the ENT-UK Clinical Audit and Practice Advisory Group to participate in locally approved data collection over a three-month period, between November 2011 and February 2012. Participating otolaryngology departments were those at: Guy's Hospital, London; Whipps Cross Hospital, London; Queen's Hospital, Romford; James Cook Hospital,

TABLE I  
AUDIT STANDARDS<sup>4,5</sup>

Standard	Target (%)	Rationale
Initial nasal exam & attempt at nasal cautery	100	Stepwise approach, to avoid hospital admission
Operating theatre evaluation or embolisation procedure performed if bleeding continues >48 hours, despite intervention or packs	100	Avoidance of prolonged nasal packing
Post-bleeding nasal exam	100	Evaluate underlying cause & decide need for further treatment or evaluation. Identify nasal pathology

Middlesbrough; Queen Elizabeth Hospital, Birmingham; and William Harvey Hospital, Ashford.

All adult patients (aged over 16 years) with a diagnosis of epistaxis, who were admitted for in-patient care and managed by the ENT departments over the study period, were prospectively enrolled. Exclusion criteria included epistaxis as an immediate post-operative complication, patients managed by emergency department personnel without ENT department involvement and those presenting to the out-patients departments.

Patient age and details of relevant co-morbidities including pre-existing hypertension and anti-coagulant use were collected.

Recently published local audits conducted within the UK have provided us with a core set of assessment parameters by which we can compare the different centres (Table I).<sup>4,5</sup> These include: an initial documented nasal examination and attempt at nasal cautery; surgical intervention following anterior or posterior packs in situ for over 48 hours or continued bleeding despite packing; and documented nasal examination post cessation of bleeding (with cautery if required). It was felt these parameters represented the essential audit standards (with a targeted 100 per cent compliance) that should be evaluated in our assessment of the quality of service provided to patients admitted for epistaxis. As such, a review of local in-patient management and duration of hospital stay was conducted.

### Ethics

Each participating centre was subject to local governance processes with respect to the audit data collection. As a review of service provision was being conducted and compared to a recognised published standard, research ethics approval was not required at any of the centres.

### Results

Over a 3-month period, a total of 166 in-patient encounters at the 6 centres were prospectively recorded. Variability in proforma completion (with high rates of incomplete or illegible recording of data) led to the removal of several parameters from the present analysis. This included data for haemoglobin, clotting and blood pressure on admission.

### Patient demographics

Hospital Episode Statistics for England between 2011 and 2012 considered epistaxis as a condition predominantly affecting the elderly, with over 49 per cent of adults admitted being over 75 years of age. Similarly, our data showed that the mean age of patients admitted to our centres ranged from 60.8 to 71.5 years.

### Epistaxis co-morbidity

Table II shows that the percentage of individuals with known hypertension was high across all centres, ranging from 42 per cent in one centre to 65 per cent at another.

Analysis of anti-coagulant use in the form of warfarin, aspirin, clopidogrel or additional anti-platelet agents (dipyridamole or low molecular weight heparin) revealed differences between centres.

### Nasal examination findings

In common with previous reviews, pre- and post-packing nasal examination findings were universally poorly recorded across all centres (Table III). Adequate documentation remains a crucial area of in-patient care.

### Surgical intervention

As shown in Table IV, only 15 of the 166 patients admitted (9 per cent) received surgery or embolisation

TABLE II  
PATIENT DEMOGRAPHICS AND DOCUMENTED EPISTAXIS CO-MORBIDITY

Centre number	Mean patient age (years)	Hypertension (%)	No anti-coagulants used (%)	Anti-coagulants used (%)			
				Warfarin	Aspirin	Clopidogrel	Alternative anti-platelet agent
1	66.2	63	37	26	21	–	16
2	64.2	47	65	26	3	–	5
3	63.83	58	46	23	19	4	8
4	70.5	65	38	28	21	7	7
5	60.75	42	64	14	7	7	7
6	71.5	57	30	37.5	20	5	7.5

TABLE III  
DOCUMENTED NASAL EXAMINATIONS

Centre number	Pre-packing exam & nasal cautery attempt (%)	Post pack removal exam (%)
1	47	0
2	18.42	13.16
3	11.54	15.38
4	37.93	37.93
5	35.71	35.71
6	40	0

TABLE IV  
SURGICAL OR RADIOLOGICAL INTERVENTIONS

Centre number	In-patient surgical intervention received (total %)	Eligible for in-patient surgical intervention (total %)
1	0	12.5
2	10	17
3	7.7	24
4	3.5	15
5	21.4	28
6	12.5	24

for epistaxis. More notable is the figure demonstrating the low percentage of cases recognised as eligible for surgical intervention according to our audit standards that received definitive surgical or radiological treatment. This varies greatly between units, with one centre only achieving this target for 12.5 per cent of eligible cases and another centre achieving this for 28 per cent of eligible cases.

#### *Length of stay*

Length of hospital stay varied greatly between the individual centres, as illustrated in Table V. Hospital Episode Statistics data from 2011–2012 suggest a mean length of stay of 1.9 days; interestingly, this figure is lower than that for any of the centres included in our analysis. The longest in-patient stay varied dramatically between centres, with one centre reporting an in-patient epistaxis stay of 11 days in total.

#### *Complications*

No mortality was documented and there were no complications associated with surgical management.

TABLE V  
LENGTH OF HOSPITAL STAY

Centre number	Mean stay (SD) (days)	Longest stay (days)
1	2.125 (0.991)	4
2	2.864 (1.669)	8
3	2.739 (1.346)	5
4	2.172 (1.441)	7
5	2.071 (1.328)	5
6	3.076 (2.698)	11

SD = standard deviation

Although two maxillary artery embolisation procedures failed to control bleeding (each at a separate centre), there were no resulting cerebrovascular events documented as a result.

#### **Discussion**

We obtained a ‘snapshot’ of epistaxis management using six centres within England to highlight the disparity between the current published standards of best practice and current management. Mortality or severe morbidity is insufficiently common to allow complete evaluation of epistaxis management. Instead, our audit focused on easily recorded, patient-relevant outcomes to assess epistaxis management and highlight areas of potential improvement for our most common patient encounter.

Prospective data collection across multiple sites presents a logistical challenge to junior staff in the face of work pressures. Limitations with this audit were therefore reflected by incomplete proforma data or acknowledgement that in-patient epistaxis patients may have been managed without inclusion. It would be preferable to use a secure web-based collection tool to encourage adequate data entry, and ease data recording and subsequent analysis. This project focused primarily on establishing the existence of variation in epistaxis management and outcome, and no attempt was made on this occasion to stratify data according to baseline characteristics.

This review did not assess the patient perspective of epistaxis management, and, in fact, there has been no published data in this area to date. This is an area that may benefit from future review given the increasing empowerment of patients in determining their treatment pathway.

This multi-centre audit highlights variability in practice and indeed outcome in epistaxis management. There is a need for ongoing re-education and promotion of definitive management for epistaxis, especially given the ever-increasing evidence promoting the utilisation of surgical and radiological techniques at the expense of the archaic dogma of prolonged nasal packing and bed rest. Some centres in our sample were more than twice as likely as others to seek a surgical or radiological approach to prolonged epistaxis.

Poor written documentation was noted across all centres with respect to nasal examination findings (pre- and post-intervention). Examination findings may assist in epistaxis management through establishing an underlying diagnosis of epistaxis as opposed to focusing on the symptom of nasal bleeding. This is an area of concern, highlighting where junior staff are not performing to the universally expected minimum standard of written communication. The absence of written records could have important medico-legal ramifications should any adverse incident occur.

Surgical or radiological intervention was not sought as a means of ‘definitive’ management as often as

current evidence would recommend. This may simply reflect underlying patient morbidities that preclude a general anaesthetic. Other factors might include a varying level of ability and familiarity in the surgical management of epistaxis, limited availability of senior clinical staff, lack of continuity in emergency care, and limited availability or perceived availability of operative and embolisation resources. It is this area in which a formalised national standard of best practice would support individual departments, in order to improve the quality of service delivered. In line with the experiences of other surgical specialties, it may be that epistaxis cases would benefit from in-patient management in designated centres, fewer in number but suitably staffed and resourced to provide a more proactive standard of care.

- **As a common ENT emergency, epistaxis is an area in which departments can seek to improve quality of service delivery**
- **Variability in epistaxis management was demonstrated between participating departments in this multi-centre audit**
- **There was disparity between published standards of practice and current patient management**

We believe that epistaxis management makes a suitable topic for a future national audit. With recent publications of surgeon-specific outcomes, and increasing scrutiny of outcomes, participation in national audits will eventually become compulsory. It is essential therefore that future audits are carefully designed and piloted. The major barrier to successful auditing is the cost. In current times of austerity, it is unlikely that NHS trusts will be forthcoming in supporting such projects. At present, unless commercial

sponsorship can be found, it is likely that the financial burden of participating in a national audit and fulfilling the other requirements of consultant revalidation will fall on individual surgeons. One potential solution is in the future role of ENT trainee research collaboratives for national audit projects such as this. A model of locally led audits across multiple centres uniting to provide a clearer assessment of current practice could be a powerful springboard for influencing national policy.

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Address for correspondence:

Miss Claire Hopkins,  
Department of Otolaryngology,  
Guy's Hospital,  
Great Maze Pond,  
London SE1 9RT, UK

Fax: 0207 188 2212

E-mail: [clairehopkins@yahoo.com](mailto:clairehopkins@yahoo.com)

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Miss C Hopkins takes responsibility for the integrity of the content of the paper

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