

## ENT Comparative Audit Meeting

### Millennium Meeting, Nottingham University

8th September 2000

#### Introduction

We are currently ‘enjoying’ a time of great change in the practice of medicine, whether this be in the treatment itself, or in the processes of care, including devolution to nurses, restructuring of units etc. These changes provide a golden opportunity for audit before and after the change – indeed it is vital that audit is done to ensure that the change results in improvement, and is not a retrograde step.

It is encouraging to see that most people have completed more than one cycle on the audit spiral, although this was not always evident on first presentation. There is still confusion amongst some trainees as to the audit process – i.e. setting a standard, evaluating your own performance against this standard, comparing the two, and if one’s own outcome falls below the standard, then making changes to improve performance. However, unless the process is continued into a second cycle of evaluation, the whole process of change could have been pointless. Hence the need for at least two cycles in the upward spiral of improvement – and this process can take years. It also necessitates that audit concerns existing practice, rather than researching something new, and is primarily concerned with the assessment of the quality of clinical care. The audit from Arrowse Park somewhat blurs this interface between audit and research however, as the distinction is not precise.

The number of audit papers submitted for presentation has continued to rise this year, which is very gratifying. Unfortunately, many authors still do not follow instructions, and it was often not easy to separate the short papers for the research section from those for audit. This is the first year that details have been available on a web page. The effect on compliance with instructions was marginal, but more authors are able to communicate by e-mail, either via the NHS or their personal e-mail. Hopefully, next year will see 100 per cent of authors having access and using it.

The St Mary’s paper confirms the findings of the 1998 audit report from Dundee that specialized teams will achieve higher hit rates and sensitivity for fine needle aspiration (FNA). Should this not now be standard practice? The Calman/Hine report and the response to it in the BAO-HNS Consensus Document is driving plenty of change for us to audit, and the Leicester paper shows how difficult it is to achieve some of the laudable standards set.

Largely ill-informed attacks on common procedures such as tonsillectomy necessitate that we audit complications and risk factors as well as outcome. It is not surprising that secondary haemorrhages rates are less in a dedicated ENT unit than from a mixed ward (Rotherham/Doncaster), but it would be useful to prove that this was due to less cross infection, and, hopefully, better care and advice on a specialized unit. Our profession is also accused of having outdated and inflexible working practices, but the Stoke Mandeville Aural Care Clinic would indicate otherwise.

Our clinical record keeping is generally appalling, so even if we agree to guidelines it can be difficult to be certain retrospectively whether they have been followed or not, as the Edinburgh audit found. Perhaps the only way to have a complete record every time is to fill out proformas for each condition. However, even if a proforma is agreed it may not be completed properly without a lot of education (Livingston audit). The problem is surely the learning curve to get up to speed with collecting data for the audit. Instead of then stopping to collect the information at the end of the audit, would it not be better to have routine ongoing collection of relevant data that could then be regularly audited in different ways – a standardized Basic Data Set for all our areas of activity?

Finally, doctors are often being criticized for being slow to universally incorporate proven treatments into practice. It looks as if there is unfortunately some truth in this according to the Black Country/ West Country audit of treatment of thyroglossal duct cyst – the lesson has still not sunk in after 80 years!

## Effect of a dedicated cytologist on thyroid fine needle aspiration

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### Introduction

Fine needle aspiration cytology (FNAC) of the thyroid gland has been shown in many studies to be the most accurate tool available in the evaluation of the thyroid nodule. Other research has suggested it can reduce the need for thyroid surgery by one third. It is cheap, cost effective and readily available but the accuracy of FNAC diagnosis may be variable.

### Aim of audit

To evaluate the diagnostic accuracy of our thyroid nodule FNAC results before and after the appointment of a dedicated cytologist with a view to improving the overall reliability of this investigation for thyroid cancer.

### First cycle

#### Standard

We set as our standard the means from Gharib *et al.*<sup>1</sup> review of eight large series of FNAC that found an overall diagnostic accuracy of 95 per cent, a sensitivity of 65 to 98 per cent (mean 83 per cent and a specificity of 72 to 100 per cent (mean 92 per cent).

#### Evaluation

The histology of 105 thyroid resections performed between 1/1/95 and 1/6/98, who had had FNAs prior to surgery, retrospectively had their FNA results compared with definitive histology. An insufficient sample was obtained in 11 per cent. Overall accuracy was 81 per cent with a sensitivity of 46 per cent and specificity of 85 per cent. The false positive rate was 11 per cent and false negative rate seven per cent. FNAC was performed by doctors in the clinic and evaluated by a general histopathologist with an interest in cytology.

#### Comparison

Our results failed to meet the standard we had set.

#### Change of practice

A dedicated cytologist was introduced in June 1998 and all specimens were sampled and analysed by her directly.

### Second cycle

#### Standard

To try and improve the accuracy of the FNAC readings with particular emphasis on reducing the

number of false negative results to zero. Overall improvement in sampling was also sought.

#### Evaluation

A further 55 patients had thyroid surgery and a prospective review of the FNAC and final histology was undertaken. An insufficient sample was obtained in seven per cent. Overall accuracy rose to 94 per cent with a sensitivity of 100 per cent and specificity of 92 per cent. The false positive rate was six per cent and we had no false negative results.

#### Comparison

All parameters had significantly improved following the introduction of a cytologist (two-sample *t* test with unequal variances  $p < 0.05$ ). We had achieved results in comparison to our standard.

### Conclusion

FNAC can be a very specific and sensitive predictor of thyroid cancer but its reliability is very much dependent on the capability of the cytology service. We demonstrate the benefits of having a dedicated trained cytologist on improving the overall accuracy of this investigation, thereby allowing clinical decision making to be based on these results.

### Future third cycle

We are in the process of setting up a combined thyroid clinic with an ultrasonographer and cytologist in attendance with the aim of auditing the diagnostic accuracy of ultrasound-guided FNAC in attempt to improve our results still further.

### Reference

- 1 Gharib H, Goellner J. Fine needle aspiration biopsy of the thyroid: An appraisal. *Ann Intern Med* 1993;**118**:282–9

## SIGN guidelines on tonsillectomy: an audit of clinical record keeping

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### Abstract

Scottish Intercollegiate Guidelines Network (SIGN) guidelines on indication for tonsillectomy were published in January 1999. The relevant information must be recorded in clinical records for audit of adherence to the guidelines to be possible. This audit assesses the record keeping of number of attacks of tonsillitis in patients admitted for tonsillectomy in a specialist children's hospital. The results revealed poor record keeping in a first cohort such that audit of adherence to SIGN guidelines would be impossible. A second audit cycle following a change in awareness showed greatly improved record keeping thus facilitating future audit of clinical practice.

## Objective

To assess the adequacy of clinical record keeping in patients admitted for tonsillectomy and improve record keeping such that audit of adherence to SIGN guidelines is possible.

## First cycle

### Standard

No standard currently exists for recording of attacks of tonsillitis in clinical records but to enable adequate audit of practice a high rate of recording greater than 95 per cent should be the target.

### Evaluation

The clinical records of 60 consecutive admissions for tonsillectomy in a specialist children's hospital were assessed for recording of number of attacks of tonsillitis. The presence or absence of this information in the GP referral letter and out-patient clinic notes and letter was assessed.

### Comparison

Compared with a target of >95 per cent recording of attacks of tonsillitis, the results from the first cohort were: GP letter, 25 per cent; clinic notes/letter, 30 per cent.

### Change in practice

The results were presented to clinicians in the unit and a change in practice to more rigorous record keeping encouraged by verbal feedback. The audit was repeated after an interval of three months.

## Second cycle

### Evaluation

Sixty-one consecutive patients were assessed as for cohort 1.

### Comparison

	Target	Cohort 1	Cohort 2
GP Letter	>95%	25%	50%
Clinic notes/letter	>95%	30%	74%

## Conclusions

This audit illustrates the fact that clinical record keeping is often inadequate to allow audit of clinical practice, as was the case in the first cycle. Feedback of this fact resulted in a significant improvement in the second cycle. It has now been possible to initiate a third cycle in which record keeping and adherence to SIGN guidelines will be audited.

## Audit of secondary haemorrhage rates following adult tonsillectomy

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## Aim of audit

To evaluate whether readmission rates for secondary haemorrhage met with Royal College of Surgeons (Eng.) standards or not, and if not, to change practice so that standards were met. The Royal College of Surgeons (Eng.) National Comparative Audit of Tonsillectomy<sup>1</sup> found that the overall rate of re-admission for secondary haemorrhage was five per cent.

## First cycle

### Standard

Re-admission rate five per cent or less.

### Evaluation

A retrospective review of all tonsillectomies (with and without additional procedures) performed at Rotherham General Hospital in the six month period from October 1998 to March 1999 gave the following results: 184 tonsillectomies, 118 children and 66 adults.

The overall readmission rate for secondary haemorrhage was 12 per cent (22/184), and the re-admission rate for children was 5.1 per cent (six out of 118) but for adults was 24.2 per cent (16/66).

### Comparison

Children reached the standard, but adults failed.

### Change of practice

The post-operative analgesia protocol had been developed following an earlier audit in Rotherham that had identified the take-home analgesia of choice for adults as diclofenac and co-codamol. Most of the adults in this study had been dispensed analgesia as per the protocol (91 per cent, 60/66). Other possible factors contributing to the high re-admission rate were analysed and no correlations were found.

With reference to the increase in bleeding time associated with the use of NSAIDs and their correlation to secondary haemorrhage reported by Smith diclofenac was discontinued and an opiate analgesic substituted. Adults were prescribed tramadol and paracetamol.

## Second cycle

### Evaluation

Between July 1999 and October 1999 (four months), the re-admission rate for adult secondary haemorrhage dropped to 15 per cent (six out of 40).

### Comparison

Improved outcome on first cycle but still failed to meet standard.

### Change of practice

In November 1999, a merger of Rotherham and Doncaster ENT services meant that all Rotherham in-patients including all tonsillectomies were admitted to a dedicated ENT and Head and Neck

TABLE I

Intervals assessed	Temporal standards (Days)	1st Cycle	1st Cycle	2nd Cycle	2nd Cycle
		% of cases that met the temporal standard (n)	Comparison with standard (i.e. succeeding in $\geq 80\%$ of cases)	% of cases that met the temporal standard (n)	Comparison with standard (i.e. succeeding in $\geq 80\%$ of cases)
GP referral to first out-patients	14	50% (50)	Fail	65% (17)	Fail
Out-patient to biopsy <sup>1</sup>	7	47% (62)	Fail	71% (17)	Fail
Biopsy to histology report issue	7	95% (62)	Pass	100% (17)	Pass
Biopsy to out-patient for treatment decision	14	55% (60)	Fail	82% (17)	Pass
Out-patient to surgery <sup>2</sup>	14	80% (30)	Pass	86% (7)	Pass
Out-patient to radiotherapy	10	30% (27)	Fail	50% (8)	Fail
Treatment to rehabilitation, Speech therapy <sup>2</sup>	10	92% (29)	Pass	86% (7)	Pass
Treatment to rehabilitation, Dietician <sup>2</sup>	0	93% (29)	Pass	86% (7)	Pass
Follow-up post-treatment	30	85% (55)	Pass	82% (11)	Pass

<sup>1</sup>Includes 'new' referrals and follow-up patients.

<sup>2</sup>Patients who had surgery  $\pm$  radiotherapy. Temporal standard chosen by Leicester.

<sup>3</sup>Patients who had radiotherapy only (i.e. not surgery).

ward at Doncaster. Prior to this they had been nursed on a mixed ward of ENT, general surgery and urological. Cross infection from these other patients could have been a factor.

### Third cycle

#### Evaluation

Re-admission rates dropped to 5.1 per cent (three out of 59).

#### Comparison

Reached the standard set by the Royal College of Surgeons (Eng.).

Following the hypothesis that tonsillectomies nursed on mixed wards may have a different haemorrhage rate to those nursed on dedicated ENT wards, a cohort of patients from 1997 were analysed. At this time Rotherham ENT patients were housed in a dedicated ward. The re-admission rate for secondary haemorrhage was 7.7 per cent (five out of 65). Analgesia was rarely prescribed and was thought to play little part in re-admissions.

#### Proposed validation of results with another unit

The secondary haemorrhage rates from another local unit where ENT patients still share accommodation with urological patients will be undertaken, and results compared.

### References

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- 2 Smith I, Wilde A. Secondary tonsillectomy haemorrhage and non-steroidal anti-inflammatory drugs. *J Laryngol Otol* 1999;113:28–30

## Are patients with laryngeal cancer receiving care as rapidly as recommended? An audit against BAOHNS guidelines

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### Introduction

The Effective Head and Neck Cancer Management Consensus Document outlines the proposed standards for accreditation of 'cancer centres'.<sup>1</sup> These include the minimum temporal standards (time intervals between referral, diagnosis, treatment and follow-up) that should be achieved in the process of head and neck cancer care. The aim of this study was to assess whether these standards have been met in the management of laryngeal cancer at the Leicester Royal Infirmary (LRI).

### Method

All patients with a diagnosis of squamous cell carcinoma of the larynx seen at the LRI over a two-year period were included in the study. The intervals outlined below were analysed for each case.

### First cycle

#### Standard

To achieve the temporal standards (outlined in Table I) in at least 80 per cent of cases.

#### Evaluation and comparison

Table I outlines the percentage of cases that met the temporal standards, and includes comparison with the standard.

#### Change in practice

1. Rearrangement of the combined head and neck clinic time-table and increase in personnel numbers to meet the demand of new patient referrals.
2. Allocation of specific endoscopy date and out-patient dates to comply with the recommended standard.

3. Referral of all potentially malignant cases seen by other subspecialists in the department to the Head and Neck clinic prior to biopsy.
4. The establishment of a database to aid continued audit.

### Second cycle

#### *Evaluation and comparison*

A prospective audit is in progress, and although the sample size is smaller, the initial results show an overall improvement in practice, but still fail to meet three of the standards (Table I).

### Reference

- 1 Effective Head and Neck Cancer Consensus Document, BAO-H&N, 1998.

## Audit of the surgical management of intractable epistaxis

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### Objective

To ascertain the various treatment modalities carried out under general anaesthetic in the management of intractable epistaxis and to assess their efficacy, and to audit the post-operative stay and morbidity of these treatment procedures.

### Methodology

Retrospective analysis of the case notes of the patients who had been taken to the operating-theatre for a general anaesthetic procedure for arrest of refractory epistaxis during the previous 12 months.

### First cycle

#### *Standards*

1. Only one general anaesthetic procedure with outcome of no further bleeding in >90 per cent of cases.
2. Minimal morbidity due to the surgical procedure with no complications.
3. Aim to avoid nasal packing again, in most cases, at the time of surgery.

#### *Evaluation*

During the one-year audit period, 132 patients were admitted with epistaxis. Eight patients required general anaesthetic procedures as follows: anterior and posterior nasal packing  $\pm$  cautery 3; anterior and posterior nasal packing + septoplasty 3; nasal packing + external carotid artery and anterior ethmoid artery ligation 2.

Two patients had to be taken to the operating-theatre two times and one patient three times. One patient was kept in the ITU after surgery for two

days. One patient had deterioration of angina, needing medication. The mean post-operative stay was four days (range three to six days).

#### *Comparison*

All the eight patients had further nasal packing under general anaesthesia, failing to meet the standard. Thirty-six per cent of the patients (three out of eight) had more than one general anaesthetic procedure to control the bleeding – failed to meet the standard.

#### *Change in practice*

Endoscopic sphenopalatine artery diathermy with, or without, anterior ethmoid artery diathermy was employed as the standard surgical procedure under general anaesthesia in all patients with refractory epistaxis.

### Second cycle

#### *Evaluation*

During the following 12 months, 145 patients were admitted with epistaxis, of whom 10 were taken to the operating-theatre. Endoscopic sphenopalatine artery diathermy was performed in all the 10 patients while four had concurrent anterior ethmoid artery diathermy also. A Kaltostat pack was applied over the inferior turbinate for 24 hours in two patients and the rest did not have any nasal packs. The mean post-operative stay was 2.1 days (range one to three days). There were no surgery-related complications. In one patient epistaxis recurred after one month requiring anterior nasal packing.

#### *Comparison*

Change in practice resulted in a 90 per cent success rate with all patients undergoing only one general anaesthetic procedure. Treatment-related morbidity was significantly reduced and there were no complications. Length of hospital stay was reduced to half. Nasal packing was not used under general anaesthesia in 80 per cent of the patients and in the remainder it was changed to a lighter packing.

The next step in the audit would be to determine the optimal timing of surgical intervention so as to minimize the discomfort and morbidity related to repeated nasal packing.

## Audit of tympano-mastoid surgery and prospective data collection

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### Introduction

The objectives of mastoid surgery are to create a safe dry ear and to maintain or restore hearing. This paper presents the results of a prospective audit study of all tympano-mastoid surgery performed at St John's Hospital, Livingston, between October

1995 and September 1999. This audit also analysed our prospective data collection (for all major ear surgery), using the proforma sheets that had been introduced at the beginning of the audit.

### Objectives

1. To assess our performance in tympano-mastoid surgery compared to national and international standards.
2. To assess our data collection method for major ear surgery and establish a simple reliable system of prospective otological data acquisition.

### Method

All tympano-mastoid surgery performed in the department between October 1995 and March 1999 was independently reviewed and the surgical results and data collection evaluated. Change was then instituted to our data collection method and the audit was re-assessed in October 1999.

### First cycle

#### Standards

Standards were set for both the surgery,<sup>1,2</sup> and data collection,<sup>3,4</sup> following a wide review of the relevant literature. We set our standards as follows: success rate for tympano-mastoid surgery – 80 per cent; major complication rate for tympano-mastoid surgery (e.g. dead ear or facial palsy) – three per cent; prospective data collection take up of 90 per cent.

#### Evaluation

A total of 57 primary and revision mastoid procedures had been performed during the analysed period. The success rate (i.e. a dry safe cavity) was 86 per cent for primary surgery and 94 per cent for revision surgery. The major complication rate (one dead ear) was 1.75 per cent. The minimum length of follow-up was six months. With regards to prospective data collection (for all major ear surgery) only 45 per cent of the proformas had been properly completed and kept up to date. Twenty-one per cent had been filled in at the time of surgery but not at clinic reviews, and 34 per cent had never been filled in at all.

#### Comparison

1. Surgical success and complication rates of both revision and primary mastoid surgery were in keeping with established standards,<sup>1,2</sup> and so no change was necessary.
2. With regards to data collection, this fell well below the standards we had set.

#### Change in practice

Discussions with the ENT secretaries led to a more pro-active approach and the setting up of a simple, but effective Excel spreadsheet database. As all clinical notes are eventually passed to the secretary for correspondence, she simply vets them for

completed audit proformas. Incomplete ones are placed on the responsible surgeon's desk. The information on completed forms is then immediately logged onto the computer database.

### Second cycle

#### Evaluation

Between April 1999 and September 1999 a total of 19 major ear procedures were performed with 17 clinic reviews, generating 36 data input episodes. One hundred per cent of the proformas were filled in, and updated correctly.

#### Comparison

Met standard for data collection.

### Conclusion

Our audit showed that our tympano-mastoid surgical success and complication rates were in keeping with established standards.<sup>1,2</sup> It also brought about a positive change in our data collection method that has been maintained up to the present time.

### References

- 1 Fisch U, Schmid S. Radical mastoido-epitympanectomy with tympanoplasty and partial obliteration: A new surgical procedure? *Ann Acad Med Singapore* 1991;**20**:614–7
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### Audit of aural care practice

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### Introduction

Otological patients often need long-term care attending clinics on a regular basis for aural toilet. At Stoke Mandeville Hospital, senior house officers traditionally provided this care until 1996 when the in-patient ENT services closed resulting in the loss of all on-site SHOs. The ENT services were reduced to day-case surgery and out-patient services provided by Consultants and SpRs from Oxford.

At this time an aural care nurse (ACN) was appointed to help bridge the gap in service created by the loss of the SHOs. The aim of the ACN was to provide aural care for all long-standing otology patients and provide a direct referral service for GPs, Audiology and all wards. She ran five aural care clinics (ACC) per week and carried a pager for advice calls at other times.

## First cycle

### *Setting a standard*

Patient's satisfaction with the Nurse should be greater or equal to 90 per cent.

### *Evaluation*

One year after setting up the ACC, a survey of the workload was performed during one month. Fifty consecutive patients were also sent a structured questionnaire by the Audit Department, that they were asked to return anonymously. The questionnaire asked about patient satisfaction with explanation and treatment given by the nurse in the ACC and how it compared with previous experience with the doctor in the main OPC. A space was also included in the questionnaire for the patient's own comments (40 out of 50 questionnaires were returned).

### *Comparison*

Ninety-two patients were seen in one month, therefore there were an estimated 960 patients per year.

1. There was 100 per cent satisfaction with the explanation of the ENT problem and treatment given by the Nurse in the ACC.
2. There was 100 per cent satisfaction with the explanation of the ENT problem and treatment given by the Doctor in the OPC.
3. There was no difference in the standard of care given in either clinic.
4. Some frequently attending patients found that appointments at both clinics were inflexible and difficult to fit around their work.

### *Change in practice*

1. The ACCs were increased from five to nine per week, two occurring early morning to allow patients to attend before work.
2. More patients previously seen in the OPC were transferred to the ACC.

## Second cycle

### *Resetting the standard (four years after introduction of ACC)*

1. Despite an increase in ACC workload, patient satisfaction remains greater than 90 per cent.
2. The OPC old patient/new patient ratio should be equal to or less than 1:1.

### *Evaluation*

1. A survey of ACC workload over two months.
2. A repeat of the 1997 Patient Satisfaction Questionnaire sent by the Audit Department to 50 consecutive patients (36 out of 50 questionnaires were returned).
3. A comparison of OPC figures in 1995 and 1999.

### *Comparison*

The total number of patients seen over approximately two months was 470 (mean = 7.5 per session,

range six to 10). The number of advice/bookings calls taken was 210 (estimated to be 2208 per year). Therefore an estimated 3100 patients were seen in 1999 compared with 960 in 1997.

1. There was 94–98 per cent satisfaction with the explanation of the ENT problem and treatment given by the Nurse in the ACC.
2. There was 93–98 per cent satisfaction with the explanation of the ENT problem and treatment given by the Doctor in the OPC.
3. There was no difference in the standard of care given in either clinic. A high standard of patient satisfaction continues to be maintained.
4. In 1995, 5768 old patients and 3091 new patients were seen in the OPC by three to four doctors (consultant, SpR and SHO). Therefore the patient ratio was 2:1 (old to new patients).
5. In 1999, 2946 old patients and 2851 new patients were seen in the OPC by two to three doctors (consultant and SpR) in addition to 3100 seen in the ACC. Therefore the patient ratio was 1:1.
6. Fifty per cent of the old patients are now being seen in the ACC thus freeing up OPC slots for new patients.

### *Change in clinic practice*

No change in ACC practice is necessary because:

1. despite increased workload greater than 90 per cent patient satisfaction is being maintained. The nurse is not perceived as a poor doctor substitute;
2. the ACC has reduced the inpatient/outpatient ratio in the OPC to 1:1;
3. The same nurse is seen each time and is available daily by bleep, therefore patients feel that continuity of care is being maintained.

### *Change in hospital funding practice*

The hospital does not charge for nurse services therefore it does not receive any payment for patients seen in the ACC. A new invoicing system needs to be implemented in order to make the ACC cost-effective.

## **Black Country/West Country audit of the surgical treatment of thyroglossal duct cyst**

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### **Objective**

To assess recurrence rate of thyroglossal duct cyst (TDC) following surgery, comparing a group who did not have removal of the cyst/tract/body of the hyoid bone and a core of tongue base (Sistrunk technique) with a group who did.

### *Standard*

The outcome of the Sistrunk operation is the Gold Standard, with recurrence rates up to eight per cent quoted in previously published series.

### **First cycle**

#### *Evaluation*

Fifty-one patients underwent surgery where Sistrunk's operation was not performed and the hyoid bone left intact. Twenty-four patients developed a recurrence that required at least one further operation. The recurrence rate 47 per cent.

#### *Comparison*

This first group of patients failed to meet the standard.

#### *Change in practice*

The Sistrunk procedure was carried out with excision of the body of the hyoid bone and a core of the tongue base.

### **Second cycle**

#### *Evaluation*

There were 84 patients undergoing Sistrunk procedure with three recurrences giving a recurrence rate of four per cent.

#### *Comparison*

The second group of patients achieved outcomes well within the standard.

### **Conclusion**

Walter Sistrunk published a description of his operation in 1920. In practice various minor modifications are carried out. Removal of the cyst, track, body of hyoid and a core of the tongue base is necessary to avoid recurrence. Eighty years later, this study shows there is still considerable variation in surgical technique. Nearly 40 per cent of patients had inadequate surgery with a recurrence rate 10× that of the correct procedure.

### **Acknowledgements**

We thank the Hatherleigh Audit group and participating Surgeons from Dudley, Wolverhampton, Barnstaple, Exeter, Plymouth, Torbay and Taunton.

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