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Operative training in otolaryngology in the United Kingdom: A specialist registrar survey

CHRISTOS GEORGALAS, MRCS, DLO, EDWARD HADJIHANNAS, MRCS*, KHALID GHUFOOR, FRCS, FRCS(ORL), PAUL PRACY FRCS, FRCS(ORL)*, MICHAEL PAPESCH, FRACS†

Abstract

Objective: To assess the current status of operative training for otolaryngology specialist registrars in the United Kingdom.

Design: Web-based questionnaire survey.

Participants: All otolaryngology specialist registrars in the United Kingdom.

Main outcome measures: The overall satisfaction with operative training was assessed as well as the number of operations performed and level of competency in stage-specific procedures, as defined by the Joint Committee for Higher Specialist Training.

Results: Otolaryngology specialist registrars are generally satisfied with the quality of their operative training. The most important predictive factor of satisfaction with operative training was the number of theatre sessions per week. The vast majority of registrars (92 per cent by the end of year one, 73 per cent at the end of years two to four) appear to attain all the stage-appropriate surgical competencies during the first four years. However, with respect to the last two years of registrar training, only 26 per cent can perform all the designated (complex) procedures. There are no significant differences between deaneries or geographic regions in the overall satisfaction rates, number of operative sessions, number of operations performed or operative competencies attained.

Conclusion: It appears that the Specialist Advisory Committee (SAC) is generally successful in maintaining common operative training standards and providing a homogenous training environment. During the first four years registrars attain an appropriate level of general training while the last two years are mainly devoted to subspecialty interests.

Keywords: Surgery; Education; Training Support

Introduction

Over the last few years postgraduate training in the UK has been constantly undergoing changes. The registrar grade has been restructured following the Calman reforms,[1] and further plans for changes in training are suggested in the consultation paper *Unfinished business – proposals for reform of the senior house officer grade*[2] produced in August 2002. These changes are a product of many forces, including the need for harmonisation with the European Community and a shortage of specialists, associated with long waiting lists. One of the expected effects of these changes is a reduction in the total time spent in training. However, in this environment of increased patient expectations as well as increased risks of litigation, a lowering of training standards would be catastrophic.

The Specialist Advisory Committee is one of the nine surgical subcommittees of the Joint Committee for Higher Specialist Training (JCHST). SAC is responsible for maintaining and improving the standards of registrar training[3] and a significant aspect of their task is to record and assess the surgical experience of trainees. In that capacity they have set stage-specific criteria of required operative competencies for otolaryngology registrars.[4] We carried out this study in order to assess whether these competencies are being attained, as well as to record the trainees' opinions of their surgical training.

Methods and materials

A website-based questionnaire was sent to all specialist registrars (SpRs) in Otolaryngology-Head and Neck Surgery in the UK in March and November 2003. Their electronic mail addresses were obtained from the AOT (Association of

From the Otolaryngology Department, St Bartholomew's Hospital, London, the *Otolaryngology Department, Queen Elizabeth University Hospital, Birmingham, and the †Otolaryngology Department, Whipps Cross University Hospital, London.
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Otolaryngologists in Training) as well as from regional electronic mailing lists. Replies were anonymous but with the option of providing an e-mail address for result feedback. All registrars were asked to indicate their current year of training and their training region. They were also requested to rate their satisfaction with operative training on a scale from 1 to 10, record the number of operative sessions per week, indicate the number of procedures performed, and grade their level of competence for particular operations ('Unable to perform', 'Able to perform under direct supervision' or 'Able to perform unsupervised'). The questionnaire referred to the training year October 2001 to October 2002, while the selection of operations was based on the classification of required operative competencies as set by the JCHST.

All data were collected in an Excel file and then transferred and analysed using SPSS software version 11.0. All continuous outcome variables were assessed for normality with Kolmogorov-Smirnov and normality plots. Descriptive statistics included means and standard deviation (SD) for normally distributed variables and medians and range for non-parametric variables. Analysis of variance was used for the assessment of difference between groups when the dependent variable was normally distributed and Kruskal-Wallis test was applied for non-parametric outcome variables. For all comparisons, the level of significance was set at $p < 0.05$ in two-tailed testing.

Results

A total of 142 valid e-mail addresses were used. We e-mailed the questionnaire twice, in March 2003 and November 2003, and obtained a total of 61 replies (43 per cent reply rate). Most replies were complete; only two registrars did not indicate their region, one failed to record his overall satisfaction with training and two failed to record the number of operative sessions per week.

General findings

Thirteen of the registrars who replied were in their first year of training during the year 2001–2002, 21 were in years two to four and 17 were in their final two years of training. Responders belonged to 12 different regions. The biggest group of trainees was from the North Thames deanery (19 trainees), the second biggest contribution was from the West Midlands rotation (nine trainees), there were seven trainees from South Thames and smaller numbers from East Anglia, Yorkshire, Wales, Oxford, Trent, Mersey, Northern and Scotland (East and West). The deaneries were further grouped in four geographic groups (South England, North England, Wales and Scotland).

Trainee average satisfaction score was 6.98 (SD 1.78). Mean satisfaction with training within different deaneries ranged from a lowest of 6 to a highest of 10. The difference between rotations or geographic regions was not statistically significant (ANOVA, $p = 0.57$ and $p = 0.31$ respectively). The average number of theatre sessions per week was 3.8 (SD = 0.86) and ranged from 1 to 6. One responder claimed to have only one operative session per week, one had two sessions, one had six sessions and the rest between three and five. The mean number of operative sessions per week in different deaneries ranged from 3.5 to 5, the difference once again not being statistically significant (Kruskal-Wallis, $p = 0.85$) (Figures 1 and 2).

We also assessed the number of operative sessions

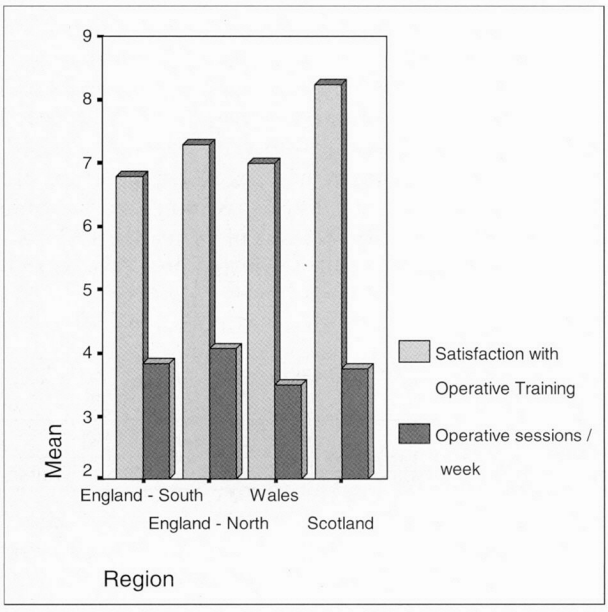

FIG. 1

Trainee satisfaction with operative training and number of operative sessions per week across England, Wales and Scotland.

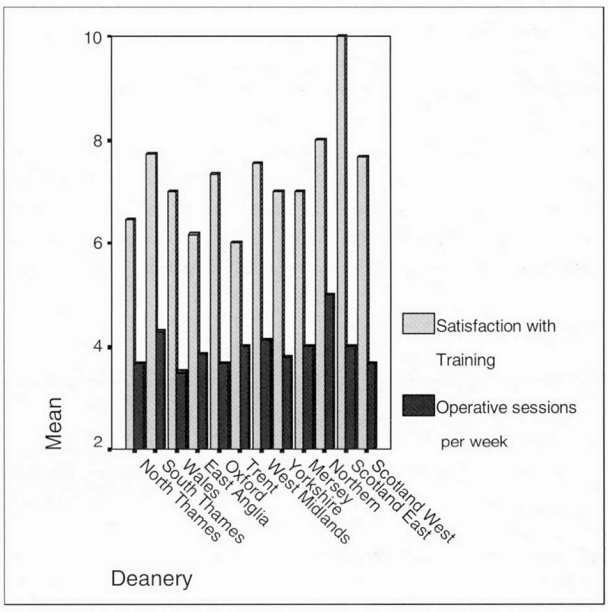

FIG. 2

Trainee satisfaction with operative training and number of operative sessions per week across UK deaneries.

TABLE I

YEAR 1 TRAINEES: NUMBER OF OPERATIONS PERFORMED DURING TRAINING YEAR, AND SELF-ASSESSED COMPETENCY

	Number of operations Median (range)	Trainees able to perform (%)		
		Unsupervised	Supervised	Unable
Tonsillectomy*	46 (7–127)	100		
Myringotomy and ventilation tubes*	37 (10–120)	100		
Septoplasty*	27 (5–60)	85	15	
Tracheostomy*	9 (1–21)	85	15	
Direct laryngoscopy/pharyngoscopy/oesophagoscopy*	30 (12–58)	54	46	
Myringoplasty	8 (0–15)	23	69	8

*Operations that the majority of trainees can perform unsupervised

according to year of training. First year trainees had an average of 4.1 sessions per week, second to fourth year trainees had 3.7 and final year trainees had an average of 4.1 sessions per week. (Kruskal-Wallis, $p = 0.27$). Final year registrars were the most satisfied with their training, with satisfaction scores being 7.5 in years 5–6, 6.9 in year 1 and 6.6 in years 2–4 (ANOVA, $p = 0.19$).

There was a significant correlation between the number of operative sessions per week and operative satisfaction (Pearson correlation $r = 0.42$, $p = 0.001$). In multivariate linear regression modelling using deanery, region, number of operative sessions per week and year of training as predictor variables, only the number of operative sessions per week was independently associated with overall satisfaction with operative training. Seventeen per cent of the variability in satisfaction rates between trainees could be explained solely by the number of operative sessions per week (R – square = 0.17, $p = 0.001$).

Operative competencies

Drawing from a training year-specific list, based on the operative competencies as described in the JCHST otolaryngology curriculum, the SpRs were asked to record the number of operations performed as well as assess their competency for each individual procedure. For trainees who had completed their first year, four operations were selected, plus two that according to the JCHST curriculum belong to the next level of training but that in practice, however, most first year SpRs are expected to know or learn (tracheostomy and myringoplasty). Similarly, for years 2–4, we selected seven operations, plus one (septoplasty) as a negative control. For the final year trainees, we chose nine operations, three from rhinology, four head and neck and two otological. Results are presented in Tables I, II and III.

In an attempt to create an index of overall competencies, we analysed the proportion of operations that the trainee can perform (with or without supervision) (Figure 3). All trainees (13 out of 13) appeared to attain all the competencies expected during their first year of training, while only 8 per cent claimed that they were unable to perform myringoplasty – an operation that has been (rightly or wrongly) designated as appropriate for more senior trainees. Trainees at the next level of training, between the second and the fourth year, are obviously a heterogeneous group; however, the majority (19 out of 27, or 73 per cent) were able to perform all eight index operations, with or without supervision. Four out of 27 (15 per cent) trainees indicated that they could perform only seven out of the eight designated procedures (three could not perform a thyroidectomy and one could not perform a modified radical mastoidectomy) and three out of 27 trainees (11 per cent) could perform only four or five index procedures. The operations that some trainees were unable to perform were rhinoplasty, thyroidectomy and modified radical mastoidectomy.

For the final two years of training, exposure and some experience in complex procedures is expected rather than an absolute ability to perform. Indeed, the majority of trainees had considerable exposure to a wide range of procedures, as indicated in Table III. As expected, only five out of 19 trainees (26 per cent) could perform all the designated procedures,

TABLE II

YEARS 2, 3 AND 4 TRAINEES: NUMBER OF OPERATIONS PERFORMED DURING PREVIOUS TRAINING YEAR AND SELF-ASSESSED COMPETENCY

	Number of operations Median (range)	Trainees able to perform (%)		
		Unsupervised	Supervised	Unable
Septoplasty*	40 (15–100)	100		
Myringoplasty*	15 (0–100)	86	14	
Submandibular gland/thyroglossal cyst excision*	10 (1–17)	58	42	
FESS*	27 (0–100)	56	44	
Cortical mastoidectomy	5 (0–30)	44	56	
Rhinoplasty (reduction/augmentation)	8 (2–30)	15	81	4
Modified radical/radical mastoidectomy	7 (0–56)	8	84	8
Thyroidectomy (partial/total)	7 (0–35)	24	64	12

*Operations that the majority of trainees can perform unsupervised

TABLE III

YEARS 5 AND 6 TRAINEES: NUMBER OF OPERATIONS PERFORMED DURING TRAINING YEAR AND SELF-ASSESSED COMPETENCY

	Number of operations Median (range)	Trainees able to perform (%)		
		Unsupervised	Supervised	Unable
Ossicular reconstruction*	12 (0–36)	63	37	
Parotidectomy superficial/total*	10 (0–30)	50	50	
Neck dissection	5 (0–20)	37	63	
Stapedectomy	4 (0–30)	35	65	
Extended-complicated FESS	2 (0–5)	39	50	11
Paediatric bronchoscopy*	5 (0–30)	50	31	19
Osteoplastic flap/midfacial degloving/ Craniofacial resections	2 (0–10)	18	53	30
Laryngectomy (total/partial)	1 (0–21)	31	37	31
Lateral rhinotomy	1 (0–5)	12	44	44

*Operations that the majority of trainees can perform unsupervised

while the majority (68 per cent) could perform at least seven out of nine index operations. However, when each individual procedure was assessed, we found that the majority of registrars achieved competency (supervised or unsupervised – range from 100 per cent to 56 per cent). The five procedures that some trainees could not perform included complex rhinological procedures (lateral rhinotomy, osteoplastic flap extended FESS) as well as laryngectomy and paediatric bronchoscopy (Table III and Figure 3).

If we compare the percentage of trainees who could perform all the required procedures, irrespective of year of training, the difference between deaneries or between geographic regions is not significant (Kruskal-Wallis test, $p = 0.73$ and $p = 0.47$ respectively). Alternatively, if we analyse the proportion of year-appropriate operations that the trainees are able to perform, we can see that overall, British trainees can perform 88 per cent of their stage-appropriate index operations (95 per cent confidence interval (CI) 77.7 to 90.7 per cent). This ranges from a mean of 98 per cent (95 per cent CI 96 per cent to 100 per cent) of the index operations for the first year, to 95 per cent (95 per cent CI 90 per cent to 99 per cent) for years 2–4, to 78 per cent (95 per cent CI 68 per cent to 88 per cent) for years 5 and 6. There is no significant difference between deaneries or regions. (Kruskal-Wallis test, $p = 0.68$, $p = 0.75$ respectively).

Discussion

Surgical training in otolaryngology is arguably among the most challenging in surgery. This is because of the variation in caseload and surgical approaches used, which include microscopic and endoscopic approaches, open surgery, functional, oncological and cosmetic surgery. Although this variety is one of the reasons that ENT is becoming one of the most sought-after specialties, it poses significant challenges. This is crucial, as changes that could potentially affect the way future consultants are trained are underway.

There is a wealth of papers assessing ENT training in the UK. Watson in 1991[5] provided a general overview of senior registrar training, including out-patient clinics and theatre, just prior to the implementation of the Calman reforms. Ten years later, in a study that mirrored the previous one, Adrian Drake-Lee reported on the training of specialist registrars.[6] This study assessed their training in out-patient clinics and operating theatres, while also recording the courses they attended and their weekly timetables. The evaluation of their surgical experience was based on trainees' logbooks; however, only 24 logbooks were available for assessment.

We felt that there was a need for a survey focused on otolaryngological trainees' operative experience. There are many discussions about the impending changes in training that could result in a reduction of its duration, with the declared aim of 'producing' consultants within seven to eight years after medical school. We felt that there was a need for an accurate assessment of the current status of operative training. There have been many concerns raised on the supposedly reduced effectiveness of training over the last years, as a result of the Calman reforms and a reduction in working hours.[7]

At the time of the survey there were 191 registrar posts in the UK – some of which were unfilled, while some of the registrars were either abroad, on fellowships, in research posts or had not been in a rotation during the previous (assessed) year. A total of 142 valid e-mail addresses were used, resulting in 61 responses (43 per cent reply rate – representing 32 per cent of all registrar posts). The reply rate was mediocre, however it was comparable to that in similar studies performed in the past – namely 30 per cent,[6] 39 per cent[8] and 49 per cent.[9] The recording of the number of operations performed was based on self-reporting by trainees; however, their accounts correlate well with figures derived from trainees' logbooks.[6] For example, in our study, fifth and sixth year trainees claimed to have done an average of 10 parotidectomies, while the actual number derived from logbooks of a random sample of year 5 and 6 registrars was nine.

We found that there were no significant differences between regions in terms of operating sessions, capability of trainees and overall satisfaction with training. It appears that the number of operative sessions has remained stable over more than 10 years. This contradicts the expressed concerns about dilution of training with the introduction of more SpR posts and reduction in

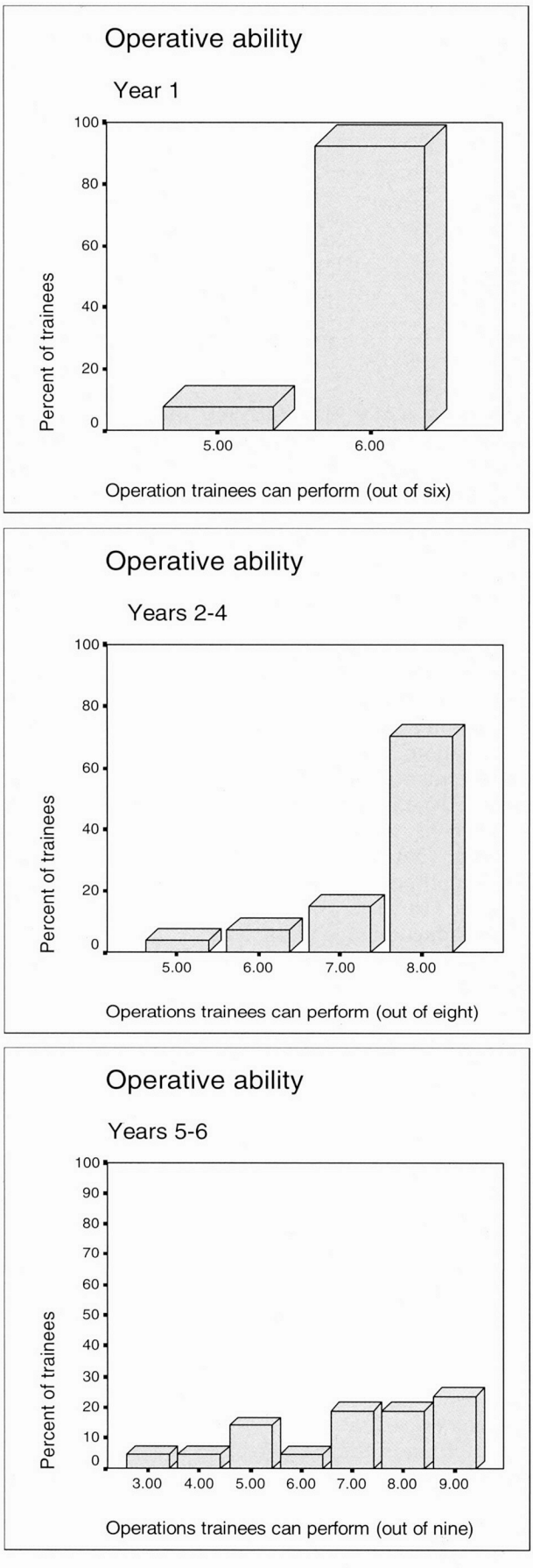

FIG. 3
Number of index operations that registrars are able to perform per training year.

working hours. It is interesting to note that the mean number of operating theatre sessions per week is almost identical (mean 3.8, SD 0.85 versus 3.9, SD 0.78) to that reported in the study by Watson[5] in 1991, just prior to the implementation of the Calman reforms. Similarly, it appears that the satisfaction with the quality of operative training is only slightly less, (7.4, SD 1.8 versus 6.98, SD 1.78).

- **This is a survey of British trainees and their feelings about their education as registrars**
- **The response rate to the survey, which was conducted by e-mail, was 43%**
- **The conclusion of this survey is that operative training standards are satisfactory and they are uniform across the United Kingdom**

There is often a perception of different workloads in different regions. In our study we found that there was no statistically significant difference between different deaneries or geographic regions in the percentage of trainees attaining all the required competencies, or the number of operations the trainees performed.

We feel that the introduction of SAC has been instrumental in implementing and safeguarding common training standards between different regions. By doing this, in association with the Royal Colleges and the JCHST, it has produced an essentially homogenous training environment within the UK.

Registrar satisfaction with surgical training is generally high, and most discrepancies can be explained by differences in the number of operating sessions. More importantly, 100 per cent of first year trainees attain all the required competencies, and 73 per cent of those in years 2–4 (a group that includes trainees in years 2 and 3) reach all the competencies required from a year 5 trainee. These include the operations most would consider core otolaryngological procedures, such as mastoidectomy, thyroidectomy, endoscopic sinus surgery and rhinoplasty. The operating ability attained at the end of the fourth year is therefore significantly superior to the standards of most European Union countries.[10] The last two years are devoted to the development of subspecialty interests, such as head and neck oncology, skull base surgery or neuro-otology.

We understand that our study has some limitations, namely the small numbers of respondents and the fact that number and competency are based on self-reporting by trainees, referring to the previous year. In this way, it could be subject to both recall and reporting bias – although an external validation performed using actual operative logbooks[6] did not refute our findings. Also, there is no distinction between trainees in years 2, 3 and 4, although they may be a quite heterogeneous group. However, we feel that the results are significant and prove that training, by and large, is

adequate, and a system of two-tier trainees, with four years of general training and two years devoted to sub-specialties, would be an adequate option for the vast majority of specialist registrars, provided that the current standards are maintained.

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Address for correspondence:
Mr Christos Georgalas
Flat 69, Block 4, Doctor's Residence,
Whipps Cross Hospital,

Fax: +44 208 535 6834
E-mail: cgeorgalas1@yahoo.co.uk

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