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Improving clinical undergraduate experience in otolaryngology: an audit of practice

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Abstract

Background. Otolaryngology is under-represented in UK medical schools. This presents challenges in terms of exposing students to the diversity of otolaryngology, as well as 'showcasing' the specialty as a career option. This study aimed to audit the impact of a change in the delivery of final year tuition on student satisfaction.

Method. Participants were final year medical students completing a 2-day otolaryngology placement. A novel teaching programme was developed in response to feedback from students who completed a baseline teaching programme. The novel programme was evaluated over a 10-week period using questionnaires.

Results. Fifty-eight participants completed the novel programme questionnaire. Overall, there was a positive impact on student satisfaction. Students completing the novel programme expressed a desire for increased otolaryngology placement.

Conclusion. This approach is an effective means of teaching otolaryngology to undergraduates. A mutual desire for greater exposure to otolaryngology in the undergraduate curriculum is held by medical students and otolaryngologists.

Main Article

Mr A W Mayer takes responsibility for the integrity of the content of the paper

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Introduction

In the UK, otolaryngology is under-represented in medical school, typically comprising less than 1 per cent of the curriculum.[1] Many medical schools lack a mandatory placement in otolaryngology and most UK medical graduates feel they have not received sufficient otolaryngology undergraduate training.[2] The lack of dedicated otolaryngology teaching appears to result in important omissions from the curriculum. A recent review of UK otolaryngology undergraduate curricula showed that only two-thirds of medical schools include otolaryngology history taking, and only 58 per cent include tonsillitis.[3]

Demands on otolaryngology service provision are predicted to increase, with problems such as hearing loss, dizziness and epistaxis being prevalent in the growing ageing population. In the UK, there are concerns that future workforce demands in otolaryngology will outstrip supply.[4] In recent years, we have seen a concerning downward trend in application rates to otolaryngology specialty training.[5] The reason for this decline is unclear; however, exposure to otolaryngology during undergraduate training appears to be an important positive influential factor in medical students' and junior doctors' decision to pursue a career in otolaryngology.[6,7]

For these reasons, it is imperative that teaching time is utilised effectively and that undergraduates are provided with the best possible experience of otolaryngology. At Newcastle University Medical School, otolaryngology teaching is delivered during a 2-day compulsory placement in the final year of medical school. This presents particular challenges in providing students with exposure to the diversity of otolaryngology as well as 'showcasing' the specialty as a possible career option. This study aimed to audit the impact of a change in the delivery of final year tuition and measure its impact on student satisfaction.

Materials and methods

Participants were final year medical students completing a 2-day compulsory otolaryngology placement. Groups of between six and eight students attended the placement each week. The first cohort of students received the baseline teaching programme. This was assessed over a 4-week period using an online anonymous questionnaire emailed to participants immediately following completion of their 2-day placement. The questionnaire consisted of statements that participants responded to on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree) and free-text responses (Appendix 1).

Using the feedback provided by those students who completed the questionnaires, the baseline teaching programme was revised in order to produce a novel teaching programme. This novel teaching programme was assessed over a 10-week period using an anonymous paper questionnaire given to participants at the end of their 2-day placement, again combining the use of the 7-point Likert scale and free-text responses (Appendix 2).

Table 1. Overview of baseline teaching programme

Time of day	Day 1	Day 2
Morning	Lectures (3 h): otology, rhinology, head & neck	Ward round, & clinic or operating theatre (3 h)
Afternoon	Clinic or operating theatre (3 h)	Clinic or operating theatre (3 h)

H = hours

Raw data were entered using Microsoft™ Excel spreadsheet software. Data from Likert scale responses are presented as mean scores. A tally of common free-text responses was recorded to identify the most frequent responses.

For both the baseline and novel teaching programmes, lectures were attended by all the students at the same time. In order to prevent crowding in clinical environments, students were distributed evenly between clinics and operating theatres, with no more than one student in a single clinic or operating theatre at a time.

Results

Twenty-eight participants completed the baseline teaching programme (Table 1). Nineteen participants completed the questionnaire, giving a response rate of 68 per cent. Overall, the baseline teaching session was positively reviewed, although some students did not find attending an operating theatre a useful learning experience (Figure 1). When asked how we could improve the placement, the most common suggestions were to reduce the duration of the classroom session ($n = 6$) and to include a clinical skills session ($n = 6$).

At this point, sufficient feedback had been gathered to develop our novel teaching programme (Table 2). Several changes were made in order to optimise the student experience. Firstly, we incorporated a 90-minute examination skills session. These sessions were taught by the clinical teaching fellow, and attended by two students at a time. The session covered ear, nose, neck and cranial nerve examinations, and students received formal feedback on their examination skills. Secondly, the content from the classroom session was split across the 2-day placement into an otology lecture, and a rhinology, head and neck lecture. Thirdly, a workbook of 20 multiple choice questions was developed that was relevant to the students' learning outcomes. Students were provided with the answers during a round-up teaching session at the end of the placement. Fourthly, clinics were split into two 90-minute sessions in order to increase the breadth of clinical cases seen (e.g. 90 minutes in an otology clinic and then 90 minutes in a rhinology clinic).

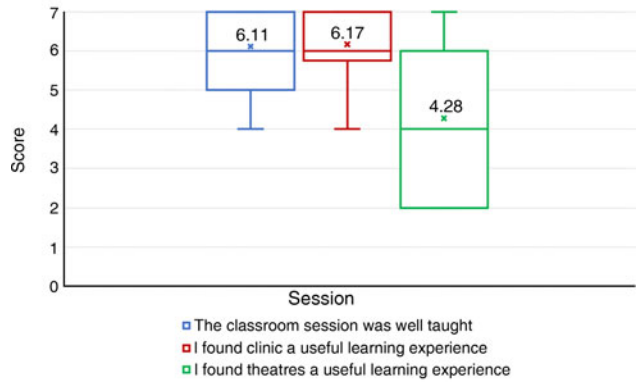

Fig. 1. Box-and-whisker plot showing feedback results from the baseline teaching programme. Score of 1 = strongly disagree and 7 = strongly agree.

Seventy participants completed the novel teaching programme, 58 of whom completed the questionnaire, giving a response rate of 83 per cent. The lectures, examination skills session and placement organisation scored highly (Table 3). In comparison with classroom-based sessions, students found attending the clinics and operating theatre a less useful learning experience.

Participants most commonly found the examination skills session the most useful part of the placement (Figure 2). When students were asked how the placement could be improved, the most common response was that the placement needed to be longer ($n = 8$).

Discussion

Students found attending the clinics and operating theatre a less useful learning experience than they did the classroom-based sessions. One explanation for this may be the lack of exposure to otolaryngology as an undergraduate; with a poor level of baseline knowledge, students may struggle to follow a clinic consultation or the principles of a surgical procedure. Instead, the students found the examination skills session the most useful part of the placement, revising skills that were taught during the second and third years of medical school. Another potential explanation for this finding is that, within the classroom environment, the student is placed at the centre of the learning process, where the tutor's focus is on engaging the students. In contrast, during workplace-based learning, the primary focus is on the patient. Balancing the triadic relationship between clinician, patient and student in order to facilitate learning can be notoriously difficult.

Workplace-based learning is opportunistic and dependent on the clinical cases that present during a day. Therefore, the experience for the learners is inconsistent. In contrast, classroom sessions occur within a controlled learning environment, and consequently the learners' experience is more reliable. Medical students' focus is often on passing exams, rather than preparation for practice. Therefore, it may be expected that controlled learning experiences are more popular amongst students, as they usually have a higher educational yield in a given time period.

What the medical student may not recognise is the importance of workplace-based learning in their professional development. With clinical experience comes tactic knowledge; knowledge not easily transferred from one individual to another by means of didactic discourse. This encompasses areas such as non-technical skills, diagnostic reasoning and pattern recognition.[8] Furthermore, experiential learning in the workplace encourages reflective practice. Consider constructivist theorist David Kolb's learning cycle: the student's experience in the clinic or operating theatre provides a 'concrete experience' on which they can reflect, identify principles, form opinions and assimilate this into their existing

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Table 2. Example timetable for a student completing the novel teaching programme

	Day 1		Day 2	
Time of day	Session	Duration (mins)	Session	Duration (mins)
Morning	Otology lecture	60	Ward round	60
	Examination skills	90	ENT casualty clinic	90
	Operating theatre	90	Rhinology clinic	90
Afternoon	Otology clinic	90	Operating theatre	180
	Head & neck clinic	90		
	Rhinology, head & neck lecture	60	Round-up	60

Mins = minutes

Table 3. Novel teaching programme feedback results

Likert scale statement	Mean score*
I found clinic a useful learning experience	5.98
I found the operating theatres a useful learning experience	4.74
I found the lectures a useful learning experience	6.72
Lecture material was pitched at the right level	6.74
I found the examination skills session useful	6.83
Classroom-based sessions were taught well	6.72
The placement was well organised	6.62

Data based on 58 responses. *Score of 1 = strongly disagree and 7 = strongly agree.

knowledge. They are then ready to utilise this new knowledge in new experiences and the cycle continues. As such, this approach has another advantage in that learners gain applied rather than abstract knowledge.[9] Additionally, spending time in the clinical environment allows students to appreciate the role of the otolaryngologist and provides an insight into what a career is like within the specialty.

Our teaching programme was organised and taught by an otolaryngology clinical teaching fellow. Clinical teaching fellows are junior doctors who are commonly undergoing a formal teaching qualification. They are relieved of some or all of their clinical commitments, allowing time for curriculum planning and placement organisation. Evidence suggests that students find teaching fellows more approachable, feel that content is pitched at the correct level and often prefer being taught by clinical teaching fellows rather than consultants.[10] We noted a decrease in student satisfaction with lectures and placement organisation during the week in which consultants delivered the teaching programme rather than the otolaryngology clinical teaching fellow. Wider availability of clinical teaching fellow posts in otolaryngology could help ensure more consistent high-quality otolaryngology teaching for undergraduates.

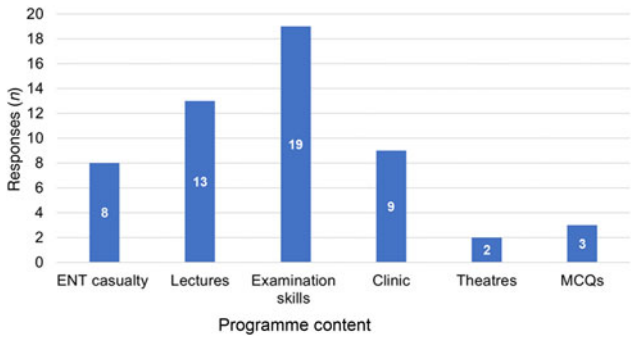

Fig. 2. Free-text response feedback results for the novel teaching programme, showing responses to the question 'What was the most useful part of the placement?'. MCQs = multiple choice questions

- Otolaryngology is under-represented in UK medical school curricula
- Many medical graduates do not feel they have received sufficient otolaryngology undergraduate training
- Medical students find attending otolaryngology clinics and operating theatre less useful for learning than classroom-based sessions
- A practical otolaryngology examination skills session is a popular teaching modality amongst final year medical students
- Clinical teaching fellows are useful in the delivery of undergraduate otolaryngology education
- Medical students and otolaryngologists desire greater exposure to otolaryngology in the undergraduate curriculum

The most frequent suggestion of how to improve the programme was to increase the length of the placement. A desire for increased otolaryngology placement time is common amongst medical students and medical graduates.[2] In addition, the duration of undergraduate placement is often considered insufficient for making an informed career choice with regard to otolaryngology. A study by Doshi and Carrie showed that within a cohort of 30 surgically inclined final year medical students, only 6 felt they had enough undergraduate otolaryngology exposure to consider the specialty as a career.[11] Furthermore, a study by Powell *et al.*, of 444 foundation year

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one doctors, showed that only 8.7 per cent of respondents would consider otolaryngology as a career. A significant proportion of respondents felt they had not received adequate experience and information to make an informed career choice regarding otolaryngology.[12]

One aspect we found challenging was the number of students in our department each week. The number of students per week had increased from the previous year, from six to eight. Although a small increase, this posed a significant barrier toward certain teaching modalities such as bedside teaching. Moreover, with current efforts to increase the number of medical school places available, one may anticipate this becoming an increasing problem.[13] This issue is compounded by the current working climate and the European Working Time Directive; junior doctors' availability to teach medical students is limited.[14]

E-learning may help to provide a solution. E-learning can help alleviate the demands of teaching on staff time, and learners can have control over the content, pace, time and place in which learning occurs. ENT UK has produced a number of e-learning resources for this purpose, including: e-LefENT (an e-learning platform),[15] Student and Foundation Doctors in Otolaryngology ('SFO UK') examination videos,[16] and the recently developed ENT UK medical student and junior doctor handbook.[17] More widespread use of alternative effective teaching modalities, such as e-learning, should be considered in light of the increasing numbers of medical students in the clinical workplace.

Conclusion

Near-peer led lectures and clinical skills sessions are effective means of teaching undergraduates otolaryngology. Although workplace-based learning is less popular with medical students, it still plays an important role in their learning and as such should not be omitted. A mutual desire for greater exposure to otolaryngology in the undergraduate curriculum is held by medical students and otolaryngologists.

Competing interests. None declared

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Appendix 1 Online anonymous questionnaire given to baseline teaching programme participants

Hospital Based Practice ENT Feedback

Form description

Start date of placement

Day, month, year

The classroom session was taught well

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

Any comments on teaching delivery (what was good, what could be improved)

Short-answer text

Any comments on lecture session content?

Long-answer text

I found attending ENT clinic a useful learning experience (leave blank if a not attended)

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

I found attending ENT theatres a useful experience (leave blank if not attended)

	1	2	3	4	5	6	7	
Strongly disagree	○	○	○	○	○	○	○	Strongly agree

Any comments on HBP ENT overall? Any suggestions for improvement? (answer required) *

Long-answer text

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Appendix 2 Paper anonymous questionnaire given to novel teaching programme participants

Hospital Based Practice ENT Feedback Form
Start date of placement:
Name of tutor(s):
Otology
Rhinology, head & neck
Examination skills teaching (Monday)
Examination skills teaching (Tuesday)
Round-up

Question		Strongly disagree						Strongly agree
		1	2	3	4	5	6	7
1	I found clinic a useful learning experience							
2	I found theatres a useful learning experience							
3	Lecture material was pitched at the right level							
4	I found the lectures a useful learning experience							
5	I found the examination skills teaching useful							
6	The placement was well organised							
7	Classroom-based sessions were taught well							
8	Any suggestions on how to improve the placement?							
9	Any suggestions on the how the teacher(s) can improve?							
10	What was the most useful part of the placement?							
11	Any additional comments?							

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