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Introduction

ENT conditions form a large proportion of both GP and emergency presentation.¹⁻⁴ Despite this, the current literature suggests that as a specialty, ENT is under-represented in undergraduate curricula.⁵ Recent surveys of medical students and junior doctors found that a large proportion did not feel confident in managing basic ENT conditions.⁶⁻⁹ This is particularly concerning given that the majority of ENT emergency clinics around the UK are led by the most junior members of the team: foundation doctors who may be in their first or second year out of medical school.¹⁰

A systematic review looking at whether current undergraduate programmes adequately prepare medical students for managing ENT conditions identified a need for development in the current curriculum, but also noted that more primary research regarding ENT curricula is required.⁵

ENT UK have recently developed an undergraduate

Abstract

Objectives: To assess the impact of small-group teaching on undergraduates and to quantify the benefit from a focused teaching course. This was delivered through a student-led ENT society course based on the ENT UK curriculum.

Design: An annual ENT OSCE course ran annually between 2015-2017. Students were given a pre- and post-course questionnaire at each course in order to determine student knowledge and confidence in managing ENT conditions.

Setting: The annual course ran in the institution's medical school teaching rooms.

Participants: Attendees included 159 undergraduate students from the same institution, all of whom were in the final or penultimate year of medical school.

Results: Of the 159 attendees, 82% felt that the current delivery of ENT in undergraduate curricula was inadequate. Comparing the pre-course and post-course questionnaires, all participants reported improved confidence in knowledge in all teaching domains: epistaxis, hearing loss, otoscopy, vertigo, and sore throat.

Conclusions: This study is consistent with the current literature by highlighting the dissatisfaction amongst medical students with the representation of ENT in undergraduate curricula. Results show the effectiveness of small-group teaching sessions in helping students improve their ENT knowledge and confidence.

Key Words

Education; Otolaryngology; Curriculum; Students; Peer Group

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curriculum for ENT, however this curriculum can only be recommended and not imposed on UK medical schools.¹¹

In 2015, ENT-SOC (Ear, Nose and Throat Society) was founded by students at a UK medical school. This student-led organisation delivers additional ENT teaching to medical students to supplement the compulsory ENT training in the undergraduate curriculum. The teaching is delivered in liaison with both the medical school's mandatory curriculum and the curriculum suggestions published by ENT UK.

With consideration to the current curriculum gaps demonstrated in the literature, and the consequent limited exposure medical students have to ENT, the authors designed an Objective Structured Clinical Examination (OSCE) revision course at the institution. This initiative was led not only to prepare students for their university examinations but with a view to further expose them to common

ENT presentations, hence improving their confidence prior to their imminent encounter with these during clinical practice.

This study aimed to assess the current quality of ENT teaching at the medical school and quantify the benefit from this additional focused ENT course.

Materials and Methods

Ethical Considerations

Ethical Approval was not considered necessary for this study. Participants were informed that completion of the questionnaires consented to the use of their anonymised data.

Participants and Data Sources

The annual ENT OSCE course ran in May of 2015, 2016 and 2017.

The course was advertised to all fourth (penultimate) and fifth (final) year medical students at the institution via the medical school bulletin. Places were provided to allow maximal attendance within the constraints of providing a small-group teaching setting.

Tutors were selected from a cohort of local junior ENT trainees who had an interest in medical education. Sessions were delivered utilising practical elements and case-based discussions. Taught material was chosen based on the medical school's ENT learning objectives in conjunction with the ENT UK curriculum recommendations; this was to ensure that the course covered the necessary topics likely to be examined in compulsory examinations. Course participants rotated around different clinical stations focused on an individual topic, similar to the format seen in OSCEs. Five areas of basic ENT were covered each year:

- Epistaxis
- Hearing loss
- Otoloscopy
- Vertigo
- Acute sore throat

A questionnaire was created for participants to answer pre- and post-course. Questions assessed the students' confidence in the taught topics (above) using a Likert scale graded from 0 (no confidence) to 10 (total confidence). The questionnaire also collected data on students' opinions of the current provision of ENT teaching at the university and the value of future, additional ENT teaching sessions.

Data were entered anonymously to Microsoft Excel (Redmond, WA), which was used to analyse data and create figures. Changes in the mean Likert scale score between the pre-course and post-course

questionnaires is indicated as + (improvement) or - (regression).

Results and Analysis

One hundred and fifty-nine (n=159) students attended the OSCE revision course over the 3-year period. In 2016, there were 46 participants, in 2017, 72 participants and 2018, there were 41 participants. All completed the pre-course and post-course questionnaires (100%).

All students were in their fourth or fifth year of a five-year MBChB course at the same medical school which teaches ENT in the fourth year of the course. All students in attendance had completed their ENT attachments at the time of the annual course date in May. On average, each student received 5.7 days of ENT during the 5-year MBChB course (range 0-14 days). Of the students in attendance, 81.90% felt that the amount of mandatory ENT exposure they received was inadequate, 11.10% felt that it was adequate, and 1.38% felt that it was excessive.

Comparing the pre-course and post-course questionnaires, all participants reported improved confidence in knowledge in all teaching domains. **Figure 1** shows the overall compiled data across the 3 years with pre- and post-course confidence mean scores and standard deviation.

At baseline, participants felt that they were most confident in performing otoscopy (mean score 6.04, standard deviation (SD) 1.55) and least confident in managing vertigo (5.11, SD 1.50). Post-course, participants were most confident in managing epistaxis (8.38, SD 1.02). The areas with the greatest improvement in confidence were: hearing loss (+2.52), epistaxis (+2.36), and vertigo (+2.22). **Figure 2** shows the data split by year. In 2016, confidence in managing epistaxis improved from 5.9 to 8.3, hearing loss 5.4 to 7.7, otoscopy 5.6 to 7.6, vertigo 5.3 to 7.4, and acute sore throat 5.1 to 7.2. In 2017, confidence in managing epistaxis improved from 6.4 to 8.5, hearing loss 5.5 to 8.5, otoscopy 6.3 to 8.2, vertigo 5.4 to 7.5, and acute sore throat 5.8 to 7.4.

In 2018, confidence in managing epistaxis improved from 5.7 to 8.4, hearing loss 4.9 to 7.2, otoscopy 6.1 to 7.9, vertigo 4.7 to 7.1, and acute sore throat 5.3 to 7.4.

All participants felt more confident that they had enough knowledge to begin work as a foundation doctor in ENT (mean score improvement 4.66 to 7.09).

Discussion

This study is consistent with the current literature by highlighting the dissatisfaction amongst medical

students with the representation of ENT in undergraduate curricula.⁵ However, the authors proposed to ameliorate this problem through the introduction of small-group teaching sessions with a peer-assisted learning facilitator.

The importance of thorough undergraduate ENT training for all doctors cannot be understated. As only a small number of doctors have post-graduate rotations in otolaryngology, knowledge of the specialty for most doctors is gained primarily from their undergraduate experience. Despite this, the average length of time spent in ENT at an undergraduate level is 1.5 weeks, with some medical schools not offering any formal attachment whatsoever.¹² This was reflected in our study where the average ENT attachment lasted 5 days.

Compared to other specialties, UK medical students feel significantly less confident in clinical competencies in ENT (including history taking, examination and management) compared to other specialties such as cardiology.^{5,6} This low confidence is also seen at a postgraduate level, with junior doctors often needing further training to successfully manage ENT emergencies in the emergency department.¹³

It is apparent in the literature that the underrepresentation of ENT in medical schools is not a problem confined to the UK. Indeed, a recent US study highlighted the need for increased exposure to the specialty at an undergraduate level and proposed the introduction of a universal otolaryngology medical student curriculum.¹⁴

The current study cohort reflected this, with over 80% of students feeling that current delivery was inadequate. In addition, pre-course data suggested that all students had poor confidence in their ability to manage basic ENT emergencies and presentations.

The question still remains about the best way to improve ENT undergraduate teaching and which topics should be prioritised. A recent Delphi survey of the current ENT undergraduate curriculum found that the highest scoring areas were history taking and examination, red flag symptoms, common ENT conditions including otitis externa, rhinosinusitis, pharyngeal infection, and airway compromise.¹⁵ Our study addressed the majority of these topics with an added focus on emergencies, recording improvements in all areas: particularly in confidence managing epistaxis and hearing loss.

Although a relatively novel teaching method, the

benefit of small-group teaching with a peer-assisted facilitator in the delivery of anatomy to undergraduate medical students has already been demonstrated.¹⁶ In addition, the utilisation of peer-assisted learning, a concept where learning is supported by a peer who has themselves only recently mastered a knowledge set, has been shown to be beneficial to students' learning experiences.¹⁷ This contributes to a more 'collaborative approach' whilst adding benefit for student and teacher alike.

The authors believe that this teaching method could be extended to the delivery of the ENT undergraduate curriculum, particularly because students at this institution do not receive any formal ENT teaching during their curriculum via a standardised approach. ENT is taught during the clinical attachment and thus students may not have received any formal ENT training if they have not engaged with clinical attachment.

Strengths and Limitations

This is the first study known to the authors to look at the value of providing near-peer facilitated small-group teaching to teach medical students ENT. The authors have run the course for three consecutive years to improve the reliability of their results.

These sessions were non-compulsory and thus there may be an element of volunteer bias in the results. This issue could be addressed in the future by making ENT small-group teaching a compulsory part of the medical school curriculum. This could also be combined with the introduction of summative assessments during students' ENT rotation, which has previously been shown to have significantly helped students' learning.¹⁸ Furthermore, as the results of this study come from a single institution, similar studies into ENT small-group teaching would be required at other institutions to further validate these findings.

The authors have demonstrated a valuable improvement in students' confidence in their knowledge, however, a formative post-course assessment would judge this objectively. Further study is required to assess retention.

Conclusion

Our study has shown the effectiveness of small-group teaching sessions in helping students to improve their ENT knowledge and confidence. Given the increased pressure on medical schools and the vast curriculum they have to cover, the authors believe the introduction of these sessions provides a useful and efficient way to deliver ENT teaching to medical students, helping them to

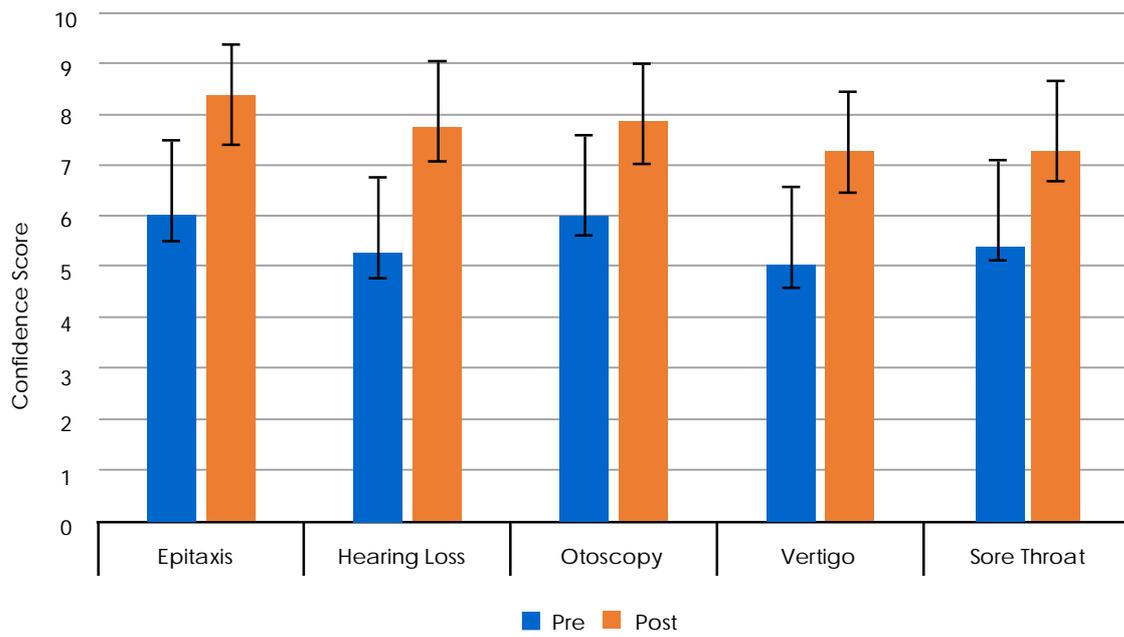


Figure 1: Overall combined pre- and post-course confidence over 3 years in each topic (2016-2018)

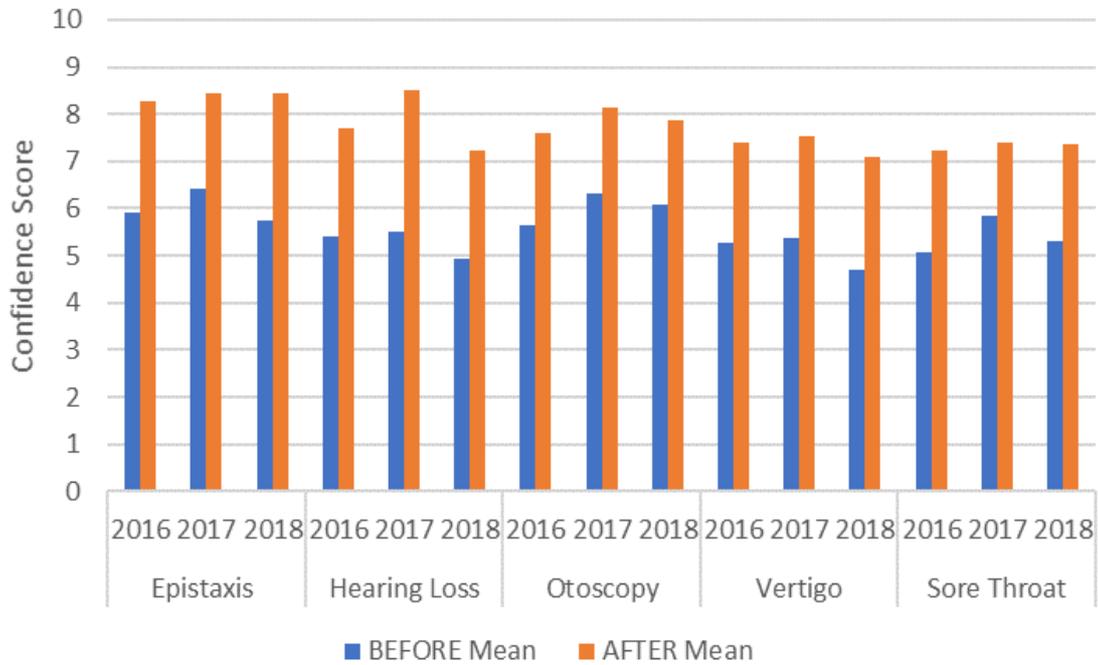


Figure 2: Pre- and post-course confidence split by year and taught topic (2016, 2017, 2018)

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