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Skills and competencies that a new ENT ST3 should possess – a live Delphi study

ENT NORTH Collaborative*

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Ethical Considerations

No financial support or conflicts of interest are declared by the collaborative. Ethical considerations relating to animal or human research are not applicable.

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JR designed the study protocol and delivered the live Delphi component. JR analysed results from all three rounds and drafted the manuscript.

EH assisted in study design and delivered the live Delphi component.

ES assisted in study design and was a collaborator on the Delphi outcomes.

The following authors contributed in all three rounds of the Delphi and reviewed the draft manuscript All co-authors institution is the NORTH research collaborative.

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Abstract

Objective

We developed a novel live Delphi method to obtain a consensus on the skills and competencies a new Ear, Nose and Throat (ENT) registrar (ST3) should possess. Developing a clear outcome set for Core Surgical Trainees is important so that this phase of training can be directed at specific aims.

Methods

Participants Attendees at the North of England meeting participated in this Delphi Exercise. This was a range of ENT professionals ranging from medical student to consultant surgeons. Our main outcome measure of consensus was defined prior to the study as the median response value; “Strongly Agree” or more for positive and “Strongly Disagree” or less for negative consensus.

Results

We identified multiple areas that reached consensus relating to elective and operative skills and demonstrated agreement in areas relating to ENT specific and allied speciality experience.

Conclusions

This study has highlighted a novel method for shaping surgical curricula.

Keywords: training, curriculum, methods, otolaryngology, research
Introduction

The transition from core surgical training to sub-speciality training at ST3 level (first year registrar in the United Kingdom) is a significant step in an Ear, Nose and Throat (ENT) trainee’s progression. Despite the number of applicants declining in recent years the application and interview process remains competitive and is a challenging hurdle to overcome (1).

There are criteria set out by the Joint Committee on Surgical Training in the Core Surgical Training curriculum regarding progression to ENT sub-speciality training. They set out a number of ENT specific clinical skills and procedures which Core Surgical Trainees (CSTs) should be able to manage independently without direct consultant supervision. CSTs undertake a two-year programme to gain a broad exposure to surgical specialities prior to progressing to ST3. This list of recommended procedures and the level of experience required is set by an expert panel as there is no evidence relating to this area of medical education and training. Similarly, at interview for ST3 ENT positions, applicants gain marks for providing evidence of performing a set list of ENT procedures, the duration of experience within ENT and experience of working in allied specialities which are demonstrated in Table 1 (2).

Table 1: Points awarded at ENT ST3 interview for surgical procedures and clinical experience. Maximum Portfolio Score = 115

Delphi studies are becoming a more widely utilised tool to develop consensus where either research is lacking or where other forms of research methodology are unsuitable. Delphi studies have been used on several occasions in the field of ENT to develop consensus on post-operative follow up, developing an ENT undergraduate curriculum and management of otitis media with effusion in cleft palate patients (3-5). Delphi studies, across the specialities, are usually conducted in several rounds and can last for several months largely due to the delays in waiting for responses, attrition of the expert panel and time for analysis.

We developed a novel “Live” Delphi Study design with the aim of identifying consensus in terms of which skills and competencies and new ENT ST3 should possess. We hoped to identify a set list of criteria that CSTs could aim for to be deemed competent to progress to an ST3 post. We focussed on four key areas:

1. Surgical procedures
2. Clinical presentations
3. Experience working in the field of ENT
4. Experience working in allied specialities.

Materials and Methods

Conventionally a Delphi study is conducted remotely via email or post. We conducted our first two rounds at a live event on the same day. This resulted in all three rounds and analysis to be undertaken within 2 weeks. We believe this alteration in methodology
increases the efficiency of this technique when compared with other previous Delphi exercises.

This three-round Delphi Exercise was conducted as part of a regional ENT conference where there were various stakeholders present from Consultants to Medical Students. We used an online voting mobile-based application (VoxVote) to gain real-time responses from the audience. The subject of the Delphi was circulated prior to the meeting to allow our respondents time to develop ideas for their responses in round 1. The first round of questions was developed prior to the conference by the investigative team and was designed with open questions to gain broad responses. These questions were presented to the attendees for the first time on the day of the Live Delphi and no prompts were used. The first and second rounds were undertaken across two 45-minute sessions; one in the morning and one in the afternoon.

Example questions are demonstrated below:

“1. Which elective surgical procedures should a new ENT ST3 be able to manage without direct consultant supervision?”

“2. Which emergency surgical procedures should a new ENT ST3 be able to manage without direct consultant supervision?”

In the second round of the Delphi, we used audience responses from round 1 and presented them back to the group. The aim of the second round was to investigate if there was agreement that a new ENT ST3 should (or should not) be able to manage a procedure or clinical scenario independently without direct consultant supervision or if there was consensus on the amount of experience, they should (or should not) possess prior to starting their post. These questions were developed between the two interactive sessions on the day with the first round being undertaken in the morning and the second round in the afternoon. The audience was given a 7-point Likert scale ranging from “Very Strongly Disagree to Very Strongly Agree”.

The final round was emailed out to participants following the meeting. Respondents that had completed the first two rounds were contacted via email and asked to complete the questions online using a web-based survey tool. We presented the responses that had not reached consensus with results from the first round visible to the panel to see if this altered results. We defined a positive consensus of a median score of at least Strongly Agree and a negative consensus of at least Strongly Disagree. There were 39 collaborators that completed all three Delphi rounds.

Following assessment of the final round for consensus we compared if there were differences in responses between Speciality Trainees (STs) in ENT and Consultant ENT surgeons. A Mann-Whitney U test was used to compare Likert scores between STs and Consultants. To see if the experience of the respondent impacted the results, we removed medical students and foundation doctors in a subsequent analysis.

There are no reporting guidelines relevant to independent Delphi studies within the EQUATOR network.
Results and Analysis

Number of respondents by round:

Round 1: 61
Round 2: 52
Round 3: 39

Respondents by grade after all 3 rounds (39 respondents)

Fig. 1 Grade of respondents.

Elective Surgical Procedures

The following elective procedures were identified during the first round; Tonsillectomy, Grommets, Panendoscopy/Direct Laryngoscopy, Adenoidectomy, Aural Micro-suction, Functional Endoscopic Sinus Surgery (FESS), Raising Neck Flaps, Nasal Cautery, Neck Dissection, Excision of Skin Lesion, Oesophagoscopy.

Table 2 demonstrates results that reached consensus after round 2 and 3. The remaining procedures did not reach consensus.

Table 2: Elective Surgical Procedures that reached consensus

Emergency Surgical Procedures

The following emergency surgical procedures were identified during round 1; Incision and drainage (I+D) of peritonsillar abscess, I+D of Superficial Skin Abscess, Post tonsillectomy bleed arrest, Pinna Haematoma Drainage, Tracheostomy, Removal of Foreign Body from Ear/Nose, Suturing of Laceration, Removal of Food Bolus, Manipulation of Nasal Fracture, I+D of Septal Haematoma, Cricothyroidotomy, Arrest of Post thyroidectomy bleed, None (do not need to be competent at managing any emergency surgical procedure without direct consultant supervision).

Table 3 demonstrates the procedures that reached consensus following rounds 2 and 3. The remaining procedures did not reach consensus.

Table 3: Emergency Surgical Procedures that reached consensus

Elective Clinical Presentations

The following elective clinical presentations were identified by the respondents in round 1: Chronic Rhinosinusitis (CRS), Hoarse Voice, Recurrent Tonsillitis, Otitis Media with Effusion, Chronic Otitis Media, Otitis Externa, Bell’s Palsy, Vertigo, Facial Pain, Dysphagia, Hearing loss, Obstructive Sleep Apnoea (OSA), Tinnitus, Laryngopharyngeal Reflux (LPR), 2 week wait (cancer) referrals, Nasal Obstruction.

Table 4 demonstrates presentations that reached consensus during round 2. No further consensus was reached on the remaining presentations in round 3.
**Table 4:** Elective Clinical Presentations that reached consensus

**Emergency Clinical Presentations**

These emergency clinical presentations were identified during round 1; Acute Mastoiditis, Food bolus, Blocked Tracheostomy, Upper Airway Obstruction, Deep Neck Space Abscess, Epistaxis, Tonsillitis, Otitis Externa, Acute Sinusitis, Peritonsillar Abscess, Periorbital Cellulitis, Acute Vertigo, Neck Lump, Wax Impaction.

Table 5 demonstrates the emergency clinical presentations which reached consensus during round 2. No further presentations reached consensus after round 3.

**Table 5:** Emergency Clinical Presentations that reached consensus

**Time Spent working in ENT prior to starting ST3**

The following time periods were identified during round 1; time spent should not be a criterion, greater than 4 years, greater than 3 years, greater than 2 years, greater than 6 months.

Table 6 demonstrates the time periods that reached consensus during round 2, there were no new time periods that reached consensus after round 3.

**Table 6:** Time Spent in ENT prior to starting ST3

**Allied Speciality Experience prior to starting ST3**

The following specialities were identified during round 1; Maxillofacial surgery, Plastic surgery, General surgery, General Practice (GP), Intensive Care, Cardiothoracics, Accident and Emergency, Neurosurgery, Anaesthetics, No Allied Speciality required. None of these responses reached positive or negative consensus after round 2 or 3.

**Comparison in Responses Between Speciality Trainees (STs) and Consultants**

In the majority of categories there was no difference in the responses between Consultants and STs. However, there was a significant difference in responses for Oesophagoscopy (p=0.047) and Removal of Food Bolus (p=0.039) where STs were more in agreement that this should be a procedure a new ST3 should be able to perform independently when compared to their Consultant colleagues. Trainees were also more in favour that experience in Maxillofacial (p=0.005) and Anaesthetics (p=0.036) should be gained prior to ST3 when compared to Consultants.

**Removing Medical Students and Foundation Doctors**

We felt that a greater cross-section of ENT stakeholders, from a variety of backgrounds and experience, would provide both exposure to a new technique and sufficient responses. However, to demonstrate that seniority would make little impact on the results of this particularly question we removed medical students and foundation doctors from the analysis.
After removal of these sub-groups foreign body removal and prior General Practice (GP) experience reached negative consensus (changing from “Disagree” to “Strongly Disagree”). All the other results were unchanged.

**Discussion**

We developed a novel technique, a live Delphi study, to seek consensus on the skills and competencies a new ENT ST3 should possess. This format allowed the Delphi to be conducted in a reduced time frame when compared to previous studies - a frequently recognised deficiency of this technique (6). We had a high engagement, compared to previous Delphi studies,

The Delphi technique has been utilised in medical education previously with good effect but this is the first study to apply to post-graduate surgical training specifically (7) (8). The progression to ST3 from Core Surgical Training is a critical one as responsibilities and expectations increase. Having clear parameters and targets for clinicians to achieve prior to starting ST3 provides a benchmark to work towards for aspiring future ENT consultants. Previously these curriculum aims have been set by a speciality-specific educational committee without input from a broader group within the speciality.

This study allowed trainees and consultants to develop consensus as a group without the impact of seniority biases. Consensus, for what presentations or procedures a new ENT ST3 should be able to manage without direct consultant supervision, was mostly achieved amongst emergency presentations and procedures. At this level the clinicians experience is largely emergency based and may have not had significant theatre exposure which may be a reason for this. This may reflect a Core Trainees training time weighted towards emergency presentations and management rather than elective theatre and clinic patients.

There were no differences in responses between the STs and consultant groups, who formed the majority of our Delphi respondents, apart from oesophagoscopy and foreign body removal. This suggests that there is differing opinion within these groups for the procedures and presentations surveyed but the average (median) opinion was similar for both groups.

The Delphi method does have limitations however. Delphi studies do not provide re-test reliability and as such we feel that this method could be applied more widely or in a different region of the UK to assess if similar responses were found. In our study the first two rounds were conducted in a conference room with delegates responding on mobile devices and there is a potential therefore that discussion took place between our panel and they were not truly independent. There was a reduction in the number of respondents with each round. This was particularly noticeable between round 2 and 3 when the “live” component was removed. There is a trade-off between engagement with such research methods and overwhelming a teaching or academic day which should be balanced. Undertaking all three rounds on one day will reduce drop-out but is likely to cause fatigue and a negative association with this method in some participants.
Summary

- A novel live Delphi technique can be adopted to reach consensus over a shorter time frame compared to the traditional techniques.
- This novel Delphi technique could be adopted in the future to shape medical and surgical postgraduate curricula as well as shape opinion in other areas of ENT.
- We demonstrated consensus regarding skills and competencies a new ENT ST3 should possess.
- There was largely no significant difference in the opinions of Consultants and Trainees in this Delphi exercise.
- We reached consensus regarding the minimum experience required in ENT prior to starting ENT ST3 at 6 months.

Conclusion

We have demonstrated a new technique for developing consensus that could help shape post-graduate surgical training and recruitment into speciality training in a more directed and evidence-based manner. This study specifically investigated presentations and procedures that a new ENT ST3 should be able to manage independently but similar Delphi approaches could be used to look at a spectrum of supervision for trainees across different experience levels and help shape the surgical curriculum.

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Competing Interests

No competing interests are declared by the authors.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Bibliography


