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Learning needs of junior doctors in otolaryngology: a qualitative study

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Abstract

Objectives. There is concern that junior doctors are not prepared for their post-graduate attachments in ENT. The aims of this study were to capture the learning priorities of those in the ENT first on-call role and facilitate further educational opportunities to address these needs.

Method. Semi-structured interviews were undertaken to explore the learning needs of junior doctors with seven junior and two senior ENT clinicians.

Results. The thematic analysis generated three themes: the role of the ENT Junior; the perceived, expressed and prescribed learning needs; and attitudes towards future learning. These themes explored the misalignment between undergraduate training and post-graduate expectations, the lack of competence in ENT practical skills and the need for focused ENT training prior to commencing on-call shifts.

Conclusion. All interviewees identified the need for greater experience in practical interventional skills prior to their ENT attachments and expressed interest towards a standardised, bootcamp-style induction with simulated emergency experience.

Main Article

Simon Morris takes responsibility for the integrity of the content of the paper

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Introduction

Otolaryngology (ENT) requires a great deal of practical skills when managing patients with acute issues. A systematic review from 2016 investigated undergraduate ENT education and its impact on clinical practice.[1] It identified that overall confidence in managing ENT patients is low amongst doctors based on their undergraduate training, and supported the need for further research into the impact of this on post-graduate ENT practice.[1] This has implications for the preparedness of doctors to deal with common ENT emergencies.[2,3] One study has shown that 68 per cent of junior doctors expected to cover ENT overnight had no prior ENT experience and 42 per cent did not feel comfortable managing acute issues.[4]

Within the National Health Service (NHS), many acute ENT services are led by newly graduated foundation doctors or Senior House Officers (SHOs) acting as the first on-call (for the purpose of this study, the title ENT Junior incorporates all those doctors below Registrar level, from Foundation Year 1 through to Core Trainee 2).[5] Despite first on-call being an established role for ENT Juniors, no consensus exists about the expectations for the care they provide.[5] For example, there is no agreement to what extent ENT Juniors are expected to identify pathology, reflecting Level 1 in Miller's pyramid ('knows') or be able to actively manage the patient and perform interventions (Level 4, 'does') (Table 1).[6] Clinical competence represents the highest level of Miller's pyramid: where skills can be demonstrated in the clinical setting.

Mayer *et al.* have shown that the majority of undergraduate curricula focus solely on ENT anatomy and physiology; with limited attention to surgical management of pathology.[7] This has negative implications for the management of basic ENT complaints such as antibiotic prescribing in otitis externa and oxygen administration in laryngectomy patients.[8,9] With patient safety paramount during on-call and out-of-hours shifts, there is a clear gap to support the rotating junior doctor cohort to prepare them for their ENT attachments.[10] No study has explored the components of this lack of preparedness in the post-graduate ENT setting.[1]

Learning needs assessment

Learning needs assessments are a systematic process to generate information on what a target group needs to learn, and can be a valuable way to improve patient safety through providing educational intervention.[11] It is assumed that adult learners have a problem-centred approach to learning, which centres around the application of knowledge to clinical skill.[12] This is pertinent to the ENT Junior on-call, where there may be observed difficulties translating undergraduate knowledge into the post-graduate clinical setting.

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Table 1. Miller's (1990) pyramid[6]

Level 1	Knows: Gathering knowledge on topic
Level 2	Knows how: Interpretation and application of knowledge
Level 3	Shows: Demonstrates knowledge in simulation
Level 4	Does: Performance in clinical practice

Ratnapalan and Hilliard have categorised learning needs into five types: normative needs describe the 'gold standard' for learner knowledge as set by a professional body; prescribed needs are deficiencies identified by experts; unperceived needs correspond to gaps identified by experts but not necessarily learners; and, finally, perceived and expressed needs are generated by the learners' opinions on what they want to learn.[13]

Previous studies have explored the optimal ways to provide clinical training alongside clinical practice, including simulation training, bootcamp-style accelerated-learning courses, virtual learning and assistantship periods.[14–18] All these ways offer potential solutions to the problem but must be tailored to the expressed learning needs of ENT Juniors. A learning needs assessment can explore and facilitate learner-centred, needs-based changes.

Aims

The aim of this study was to undertake a focused learning needs assessment for junior doctors entering ENT attachments. The aims and subsequent results of this study were be two-fold: to capture the learning needs of those in the first on-call role and facilitate further educational opportunities to address these needs.

Materials and methods

Design

This research took the form of a semi-structured interview with qualitative analysis methods. All types of learning need are captured through interactions with both junior doctors (who the learning needs apply to) and senior colleagues (who facilitate the learning needs). A semi-structured interview guide was developed to explore the learning needs of interviewees. This flexible approach guides the exploration, without hindering emergent themes.[19]

Sampling and participants

Purposive sampling methods were used to recruit both junior and senior ENT clinicians who shared experiences working in ENT departments in one UK deanery. Sampling required ENT clinicians with experience, knowledge and opinions on working as or supervising ENT Juniors to capture holistic learning needs, firstly, those who act in the first on-call role, including Foundation Year 1 and 2 doctors, general practitioner specialty trainees and core surgical trainees, and, secondly, ENT consultants who are responsible for supervision both in a clinical and an educational capacity. These two groups are termed 'juniors' and 'seniors', respectively.

Pilot

The semi-structured interview guide was piloted with one senior ENT clinician. The focus of this procedure was to enhance the quality, validity and credibility of the research approach. The instrument was modified to ensure that each question had purpose, guided the interview in a logical means and mitigated bias in the questions.

Analysis

Qualitative data gained from the semi-structured interview were transcribed verbatim. Braun and Clarke's six phases of thematic analysis were used to evaluate the data and accommodate emerging patterns in the data in a bottom-up approach.[20] During both data collection and coding, it was apparent that a saturation of new perspectives was complete by the fifth interview.

Nvivo 12 Pro (QSR International Pty Ltd, Burlington, Massachusetts, USA) was used to organise the data.

Ethical considerations

Ethical approval was granted from the Cardiff University School of Medicine Research Ethics Committee (reference: SMREC 22/12). Informed consent was obtained from all participants. Pseudonyms were used to protect the identity of any participants when using direct quotations.

Results

This section presents the results of the thematic analysis. The final themes and sub-themes are shown in Table 2 with

Table 2. Final themes

Theme	Sub-theme	Quote
The role of the ENT Junior	Defined expectations	'I don't think anyone has ever told me: This is where your job ends, and this is where the Reg takes over'
	Preconceptions from undergraduate ENT curricula	'The experiences that I had as a medical student probably didn't make me feel very prepared for ENT'
Learning needs	ENT knowledge	'As an F1 on call, I just didn't put that much emphasis on the anatomy and physiology of things'
	ENT skills	'It's a heavily practical, skilled specialty – probably more so than all of the others'
	Validation and competence	'It would have been nice for validation … and having that reassurance that you're doing something correctly'
Attitudes towards future learning	Methods for future learning	'It might have been better if we had done it in a simulated scenario just because I didn't realise how much it hurts inserting a rapid rhino'
	Near-peer learning	'Usually from the person that's a little bit higher up than you, but still junior because they can see it and understand it from your level of experience'

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illustrative quotes. Reponses include those of seven junior doctors who have recently or currently work within ENT departments and two consultants (senior) who act as educational supervisors in ENT.

Theme 1: The role of the ENT Junior

Theme 1.1: Defined expectations

Throughout the NHS, it is commonplace for the most junior members of the ENT team to act in the first on-call role, with senior registrar support available off-site out of hours.[21] Naturally, to those who have not previously worked within a first on-call role, this can be a shock. Interviewees who had not been counselled on this approach expressed some confusion about the expectations of them within this role. They understood that ENT was a practical and hands-on specialty, but there was no clear guidance as to what skills were expected of them and the limitations of their role.

> Junior 6: My main worry was being alone.

Junior 3: Your job on General Surgery as an F1 is pushing on bellies and speaking to your Reg. Whereas ENT is unique in that sense that you do so much of it practically on your own.

Given the responsibility and independence given to Juniors in ENT, this pointed towards further confusion and anxiety about when it is appropriate to escalate patients. In other specialties, a top-down referral system means a senior member of the team is aware of emergencies at the time of referral and they can become involved as soon as necessary. In ENT, ENT Juniors are afforded a greater level of independence when managing patients.

Providing new ENT Juniors with a clearer definition of their job role may provide reassurances about what requires escalation to a senior colleague to avoid them having feelings of anxiety when expected to cope with something that they may perceive to be outside their limitations of practice. Those who had been made explicitly aware of the expectations within their role seemed more comfortable with the expectations.

> Junior 2: It emphasised how much you need to get comfortable in performing all of these basic skills, which really we didn't have any insight until we got to that job.

On many occasions, interviewees implied that they wanted to be independent at these skills and able to cope with the demands of the role. Despite there being a recognised pathway to escalate clinical issues to a senior colleague, many felt the expectation was not to disturb their senior and cope regardless of the complexity of the clinical problem.

> Junior 6: I didn't want to have to call the Reg in the middle of the night to be like, can you please do this? I felt like I should just be able to get on with it.

Thus, there was a tension between ENT Juniors' awareness of their limited experience and their reluctance to bother a senior colleague for support. The combination of the unfamiliar first on-call role, lack of immediate senior support and expectation for practical skill performance were recurrent themes when interviewees were reflecting on their ENT attachments.

Theme 1.2: Preconceptions from undergraduate ENT curricula

The role of undergraduate medical education is to equip learners with the knowledge and skills they need for clinical practice. Both junior and senior interviewees suggested that medical school did not facilitate the transition from undergraduate medical student to junior doctor effectively. The misalignment between undergraduate and post-graduate training was recognised during interviews with both ENT Juniors and senior supervising clinicians.

> Junior 2: We had very minimal core ENT teaching. We have maybe one or two lectures. And apart from that, hardly anything… we didn't really learn anything about any of the common presentations that you'd see as an ENT SHO on call.

Senior 2: The undergraduate courses provide knowledge, basic science and some pattern recognition… but it doesn't provide the practical skills to deal with the problems.

As well as the time limitations on ENT leading to poorly emphasised learning outcomes, there was an apparent feeling that the undergraduate learning outcomes do not marry with the common pathologies seen by junior doctors. This has pitfalls for clinical practice, where one may be equipped with the theoretical knowledge to deal with an acute problem but cannot convert this to interventional management. Obviously, this is a contributing factor to the lack of experience in procedural skills relevant to ENT.

> Senior 2: You get blitzed with a lot of knowledge which has no context in a short period of time and expected to regurgitate for an examination… and then you're thrown in the deep end when it's when it's real. I don't think the two things match particularly well.

Given the limited time spent in ENT, there is a temptation that the ENT placement becomes a novelty week, and that time is prioritised to advertise the specialty to medical students, rather than being used to see the common presentations that are likely to be encountered in post-graduate practice.

> Senior 2: Ultimately, you're putting out a shop window, aren't you? You're trying to attract people into your specialty… seeing microsuction of the ear and the insertion of a pope wick. It's not as sexy as a laryngectomy.

It is possible that at undergraduate level, ENT is pitched as a novelty specialty with little real-world application. If limited emphasis is given to the day-to-day skills needed and undergraduate attachments focus on the 'sexy' topics rather than the useful topics for day one of Foundation Year 1, this is unlikely to give people a true representation of the specialty and place their learning in an adequate clinical context.

In relation to educational needs, ENT is perhaps not a felt need as an undergraduate and thus learners are not motivated as a result of perceived clinical irrelevance. A possible solution is to address these needs with further training in proximity of juniors' upcoming ENT rotations to allow direct application to clinical practice.

Theme 2: Learning needs

It was clear when interviewees were reflecting on their experiences within ENT attachments that many of their initial learning needs stemmed from anxieties in relation to the job. No

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interviewee described a thorough induction process that allowed them to function in the job optimally from day one. Whilst it was not a primary aim to create a list of learning topics with interviewees, the nature of the conversation uncovered their learning need topics. Table 3 shows the emerging topics, divided by sub-specialty, that were frequently discussed in the emergency setting.

Theme 2.1: Theoretical and skills needs

Theme 1.1 has shown that many of those interviewed did not feel that undergraduate education provided the appropriate knowledge base to work in the autonomous role of the ENT first on-call. This had two main implications. Firstly, a lack of knowledge impacted the interviewees' ability to take referrals from other specialties because they did not understand what needed to be seen by acute ENT services. Secondly, this impacted how they subsequently managed patients in hospital, including the practical skills required for some interventions.

There was largely agreement between the two groups about the relevant learning needs for ENT Juniors to begin their attachments. The needs within Table 3 comprise broadly two types: those pathologies that ENT Juniors encounter daily (such as otitis externa, epistaxis, quinsy) and those that are considered the most worrying, yet less common, ENT emergencies (such as stridor and post-tonsillectomy bleed). While the former were discussed on a much more frequent basis, the latter were discussed with much greater feeling.

Interestingly, despite Theme 1.1 highlighting the lack of definition ENT Juniors were given within their role, the prescribed learning needs given by the senior clinicians aligned very closely with the expressed needs of juniors. This included explicit responses explaining when a patient should be escalated to a senior ENT clinician. This example refers to the confusion from a junior about an airway emergency versus the expectation from the senior colleague.

> Junior 1: I did not know if I was expected to know how to manage an airway emergency… there's a lot of fear stirred up in foundation doctors if they think they might be asked to manage an airway emergency when they're certainly not competent to.

Senior 2: They should know when a patient has got stridor and need to escalate to somebody urgently.

In general, the ability to perform practical skills outweighed the need for theoretical knowledge for most juniors. Many perceived the ability to perform practical skills effectively as a more pertinent patient safety issue than having the underlying knowledge base.

> Junior 4: The day-to-day practical stuff probably felt more important. Because the reality is at 4 o'clock in the morning, nobody cares if you could tell them the five vessels in the nose, they care if you're going to fix them.

Senior 2: What causes a nosebleed and where the bleed comes from – it's not terribly important because we should stop the patient from bleeding and then worry about what the cause is.

It was not just patient safety that learners felt they needed skills for, but to be able to make their own workload more efficient and minimise discomfort for patients. The nature of many of these skills mandates close contact and can cause discomfort for a patient already in pain.

> Junior 2: It would be great to have some kind of experience in using a microscope before you start doing on-calls just so that you feel a bit more slick when you're actually seeing patients…. Maybe like

Table 3. ENT emergency learning needs

	Theoretical need	Skill need
Otology	Otitis externa Necrotising otitis externa Tympanic membrane perforation Bell's palsy Otitis media Mastoiditis	Examine an ear Perform microsuction with microscope Remove aural foreign body Insert pope wick Drain pinna haematoma
Rhinology	Epistaxis Nasal trauma Sinusitis Orbital cellulitis Post-functional endoscopic sinus surgery complications	Examine a nose Perform nasal cautery Perform nasal packing
Laryngology/head and neck	Tonsillitis Quinsy Food bolus Hoarse voice Stridor/airway emergency Oesophagoscopy complications Post-thyroidectomy haematoma	Examine the throat and neck Drain a quinsy Perform flexible nasendoscopy Manage tracheostomy tube Steri-strips, Cut sutures, Open skin, Open muscles, Pack over wound (SCOOP) protocol
Paediatric ENT	Acute otitis media and sequalae Orbital cellulitis Post-tonsillectomy bleed	Examine an ear Examine a nose Paediatric resuscitation
Miscellaneous	Post-operative ENT care Taking/triaging referrals Escalate a patient to a senior Handover Routine post-operative care	Drain skin cysts Suture laceration

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> assessments on a model or something would be good just to prove that you know the techniques involved and then proceeding to 'real life'.

That said, despite the lack of priority for these theoretical skills amongst junior interviewees, there were knowledge gaps expressed both consciously and subconsciously in relation to anatomy and physiology.

> Junior 4: When seniors are asking you to describe what you're seeing, my anatomy still wasn't good enough to describe over the phone what I was seeing and where I thought the problem was.

An instance where a good grounding in theoretical knowledge may have benefitted interviewees was when taking a referral or giving advice via the telephone. This was a clear and repeated anxiety amongst the junior cohort. Perhaps this lack of theoretical knowledge did have an impact on this aspect of the job, where interviewees were overwhelmed, unable to organise and gather the information needed to make sense of a case's priority.

> Junior 5: Gradually I started to know which questions to ask, what was acutely important, what could be referred as an out-patient.

Junior 6: I didn't feel that I knew enough initially to reject any referrals, so I was accepting and admitting everything because I wasn't confident enough.

Essentially, many learners prioritised the need for practical skills above knowledge when faced with a patient. This was an interesting perspective given typically one would consider the traditional need for stepwise accumulation of knowledge from anatomy, physiology, pathology, management and then practical intervention. Yet the knowledge needs were not recognised until they were challenged by a referring or senior colleague.

This points to the needs for further training, in a clinically focused setting, in proximity to their ENT attachments to scaffold their learning,

> Junior 6: Something that gives you the knowledge that you need to have as an SHO but doesn't go to in depth that it's confusing… simple plans like if – this comes in, you need to do this, this and this. And this is when you need to escalate things to the senior.

Ultimately, all interviewees alluded to the fact their knowledge was inadequate at the outset to function optimally as the ENT first on-call. This limitation was recognised by those who had insight, but in others their oversight for basic knowledge was illustrated with difficulties in other areas of the role.

Theme 2.2: Validation and competence

When reflecting on the competence needed to perform skills during their ENT attachments, interviewees gave varied interpretations of competence. The ability to perform skills was important to all juniors. For some, this involved a formal process, such as the completion of a workplace-based assessment. Others felt that a more informal process of validation from a senior colleague was an indication of their competence. For others, confidence in the ability to teach others a skill was adequate evidence of competence in a skill.

> Junior 5: At the start I wanted to get a workplace-based assessment done just on the first couple of tries just to make sure I was doing it correctly.

Junior 6: Teaching the medical students, that's where I was like: OK, now I am confident that I'm teaching these skills to my juniors. So that's how I validated that I've improved.

When reflecting on the idea of competence with a senior interviewee, the limitations of workplace-based assessments were noted from a trainer's perspective.

> Senior 2: I'm somebody that doesn't really believe very much in the workplace-based assessment system… the fact that you've got 10 workplace-based assessment at level 3 doesn't mean you're competent dealing with it. It just means you're OK on the day when we talked about it.

The above quote recognises a valid limitation of workplace-based assessment: an assessment may only be made during an isolated clinical encounter and is not representative of a learners' overall clinical competence. However, this contrasts with the juniors' view because they feel that workplace-based assessments are a valuable tool to reflect and document their progress. A checklist of competency in appropriate skills in both simulated and clinical settings seemed to be a popular notion amongst interviewees. It was felt that this would provide an appropriate tool for new ENT Juniors to begin performing skills independently if approved by a senior colleague.

> Junior 5: So maybe like being having some work like some skills assessment time… to say like if you can get these checked off by the time you've done your first couple of weeks.

This aligns with the modern principles of competence-based medical education, where focused training is driven by the development of competencies. In essence, this provides greater learner-centredness, equipping clinicians with focused skills rather than overloading them with extraneous knowledge that does not necessarily correspond with skill acquisition.[22] In this study, there was an expressed need for a formal validation process to give ENT Juniors the confidence to perform skills independently and give them ownership of their role.

Theme 3: Attitudes towards future learning

This theme was identified following the discussion of learners' needs and their reflections on future learning opportunities. Interviewees frequently cited means by which they felt they may have been better supported when initiating their placements in ENT. This theme has combined the codes relating to learner motivations and favoured modes of learning to create the following sub-themes.

Theme 3.1: Methods for future learning

All interviewees reflected on the fact that they performed ENT skills for the first time on real patients. This was frequently an anxious time for learners, who did not feel that the mantra of 'see one, do one, teach one' was appropriate. There were two solutions to this discussed in detail: the need for a focused ENT induction process and the need for simulated practical skills training.

Participants expressed an interest in bootcamp-style learning prior to entering a new clinical environment.

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> Junior 6: If there could be a day or so where we were just taught all those practical skills, these are the emergencies you're going to be dealing with.

Senior 2: Bootcamps I think are helpful in this regard. So you know you're actually getting a chance now to do practical stuff and they are a tremendous innovation.

The advantage of this approach is that it ensures that all ENT Juniors starting in a department are given a consistent induction, with a grounding in clinical application and a safe, protected space to learn.

The actual educational approach used can vary, but interviewees valued an integrated approach, building on their schema and climbing Miller's pyramid to achieve competency performing skills.[6] Simulation was a frequently cited mode of learning that interviewees wished to be exposed to more often.

> Junior 1: I think simulation would be fantastic because at least you know there's no harm going to come with it… a little bit of theory mixed with practical is ideal.

Senior 2: Having some sort of physical simulation which allows you to replicate what you will do on the living person prior to coming into clinical practice is going to be useful.

Simulation offers the ability to try out skills or scenarios so that there is less focus on the skill itself when it needs to be performed in the clinical scenario. Interviewees recognised the limitation of this approach but acknowledged it may go some way to allay the anxiety of performing a skill on a patient for the first time.

Interestingly, the simulation approach was valued not only for clinical skills, but also non-technical skills such as taking a referral.

> Junior 3: I'd like simulated referrals. So have someone pretending to be a GP referring you XYZ and just building up, practicing what you need to ask. I think having a more simulated thing rather than your first time being an actual GP would be useful.

Following Theme 1.1, which explored the misalignment of undergraduate curricula and post-graduate expectations, it is important to consider when this form of simulation would be most valuable. Most interviewees recognised that proximity of learning to the need for the skill meant that they were more likely to retain their learning if they could foresee its relevance to clinical practice.

> Senior 1: If on the first Monday of your new job, you're being taught, this is what you will be doing a couple of hours from now potentially… I think the focus and the drive is a lot more there and they can picture themselves doing it in the middle of the night.

Inevitably, some skills will only come with time and repeated exposure in clinical practice, but the thought of high-fidelity exposure at the start of the placement was generally favoured to help consolidate and enhance future learning.

> Senior 1: We need to give our SHO a day to just go and do these things. And then when they're back, they will be better. They'll enjoy the job more.

Designing emergency or practical skill-based simulation scenarios in ENT requires planning to ensure that the scenario is optimised for learning and that simulation is used effectively alongside other training opportunities.[23] For example, the ENT airway emergency is a concern of both juniors and seniors alike. It is vital in this acute, time-critical scenario to ensure that immediate management can be implemented without hesitation. Thus, addressing this emergency in a simulated scenario prepares learners for the urgency, anxiety and need for rationalised management under pressure.

> Senior 2: When people come charging in and care about what they're doing, they're anxious as hell. And, you know, it's a very adrenaline-filled experience, even though it's a piece of plastic on the table… you switch into that sort of pre-learned drill mode and then start to perform on a much higher level.

This quote encapsulates the aims of emergency simulation training.

Based on the learners' expressed need in this study for a rigorous induction and pre-placement training, integrating these simulation stations into a bootcamp-style induction course may be a valuable way of integrating skills, removing the anxiety barriers towards acute scenarios for ENT Juniors and facilitating their learning for application in the clinical setting prior to their first encounter with an ENT emergency.

Theme 3.2: Near-peer learning

When exploring learners' needs, interviewees reflected on their experiences and how they had fulfilled their learning needs. Aside from private reading and clinical experience, many referred to a near-peer model of learning.[24]

> Junior 4: Usually from the person that's a little bit higher up than you, but still junior because they can see it and understand it from your level of experience more easily… They can sort of interpret how you're feeling or what you're trying to ask easier than somebody with 20–30 years' experience that can't remember 20 years ago, how they were feeling in your position.

As mentioned earlier, some ENT Juniors felt embarrassed that they were unable to carry out what they perceived as basic ENT skills. Seeking advice from a marginally more senior colleague seemed to allay this fear and anxiety of performing skills, highlighting a key attribute of the model. Despite the traditional role of the consultant as the didactic educator, the value of near-peer learning was recognised by both senior interviewees.

> Senior 2: If you ask the consultants to do it [teach] then you'll find that they are a bit out of touch with the current management of simple things like otitis externa, epistaxis and you probably want somebody in the middle.

Senior 1: The Registrars. In the last few years they've learned the skills. Mastered the skills. Now they're gonna teach the skills and it's in their interest to teach the skills.

However, they recognised the limitation of this approach, particularly when balancing the cognitive congruence of a junior tutor with the clinical expertise of a senior tutor.

> Senior 2: They have to be senior enough… the more complex airway issues, I think it would be less appropriate for them to do.

This is a recognised limitation of the approach, and thus rigour needs to be applied in any application of near-peer learning to ensure that misconceptions are not inherited by learners. Nevertheless, near-peer learning has potential applications for these learners when designing future learning

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opportunities to address their learning needs. In addition, this relationship should be encouraged during clinical attachments to allow this near-peer model of learning to blossom, supporting learners throughout their attachments in an informal and mentor-based learning environment.

Discussion

This study has uncovered several needs felt by junior doctors working in their ENT attachments, and these have been triangulated with the views of their senior counterparts. The learning needs assessment has highlighted several desired avenues of future training for ENT juniors in the same position.

The optimal timing of ENT skills acquisition in relation to post-graduate training is still debated. In this study, many interviewees felt a disconnect between undergraduate teaching and post-graduate expectations. It is likely that this misalignment had an impact on their outlook for the job and challenged their definition of the ENT first on-call role, which in most cases was more demanding than anticipated. Thus, additional ENT training may be better suited to the post-graduate setting, in closer proximity to the job.

Both the most frequently occurring and meaningful code was the need for a standardised clinical induction to provide adequate skills training prior to initiating ENT attachments. The General Medical Council (GMC) states that an induction process is recommended for all rotating doctors to equip them with the appropriate skills to function in a new role.[25] However, induction is one of the worst-performing domains on a repeated basis in the annual national GMC trainee survey, frequently leading to doctors feeling out of their depth on clinical placements.[26]

Providing a needs-based induction process has demonstrated benefits in medicine, equipping rotating junior doctors with an improved baseline of knowledge and skills.[27] Many interviewees expressed a preference for a bootcamp-style process with an emphasis on simulated emergency scenarios and practical skills training. Outside ENT, a bootcamp approach has been recognised as an effective and efficient way to rapidly improve knowledge, confidence and surgical skill.[16,28,29] These accelerated programmes deliver an intensive learning experience, designed to standardise participants' knowledge according to their job expectations.

Simulation training was also a priority for interviewees. There are several examples of ENT simulation training, including nasal packing, flexible nasendoscopy, quinsy and tracheostomy.[30–33] All of these approaches have demonstrated that simulation provides a useful means to bridge the gap between theoretical knowledge and the ability to perform the skill on a real patient, something that learners in this study craved. This learning could be facilitated in a single day of teaching to meet the needs listed in Table 3, as well as taking into account the non-technical skills that were highlighted by junior interviewees.

The content of such an induction process should account for the learners' expressed and prescribed needs. The consensus of these needs was generally agreed between the junior and senior interviewees in this study, despite there being some differences in topics compared with the established Delphi studies.[34,35] Interviewees expressed a greater need for practical skills training such as quinsy drainage, flexible nasendoscopy and nasal packing, whereas the Delphi studies prioritised some more theoretical concepts such as management of thyroid pathology and assessment of dizziness. This is a strength of this study, where the qualitative exploration of learners' context can better shape learner-centred educational activities in a future induction programme compared with these quantitative approaches.

In addition to the educational activities in the simulated setting, the concepts of competence and mentorship were raised during the learning needs assessment. Miller's pyramid describes the climb towards an independent clinician.[6] Whilst an induction course cannot guarantee this, it can form the basis for this consolidation in clinical practice.[15] This induction can cover the needs identified in Theme 2 and define the role of the ENT first on-call. Providing an overview of the common ENT presentations with clear guidance on what requires senior escalation may provide insight into the ENT Juniors' limitations. Ultimately, this may give them ownership over their role as a gatekeeper to acute ENT services, whilst feeling supported in their decision-making. It will also allow learners to build on their knowledge schema, progress through the zones of proximal development and accelerate their learning in the clinical setting.[36,37]

Both junior and senior interviewees valued the near-peer model of learning. This technique involves colleagues marginally more senior to one another providing teaching on a topic that they have recently mastered.[24] It is based on the principle of 'cognitive congruence', in which teachers and students share a similar knowledge base and learning experience, therefore the teachers are judged to be able to provide learning at a more relatable level than more senior colleagues.[38] Near-peer learning provided a perceived safer space to learn in.

Furthermore, the stepwise escalation of problems in clinical practice often means that a marginally more senior colleague troubleshoots the problems of the junior. As such, interviewees felt that ENT Registrars are at the optimal point to provide this teaching because they have recently mastered the relevant skills, have enough experience to teach these competently and their second on-call role means they are frequently supporting ENT Juniors with clinical problems. Forming this mentor relationship at an induction process may enhance the team dynamic and dispel the need for ENT Junior to cope alone.

Implementation of a bootcamp induction day incorporating these learning needs would align with national guidance from the Royal College of Surgeons and the GMC.[25,39] This mandates that all rotating doctors should have a protected induction process that allows preparation for their clinical roles. Thus, coupled with the expressed needs of learners, there is a strong rationale to develop the induction process.

Suggestions for further research

There is widespread concern about the delivery of ENT training and junior doctors' preparedness for practice.[1] Some researchers have made attempts to change this at the undergraduate level by exploring ENT curriculum needs.[34,35] It is uncertain how the incoming GMC Medical Licensing Assessment will standardise the knowledge required for graduation from an ENT perspective.[40] Nonetheless, this study has demonstrated a need for additional post-graduate training in ENT for those expected to provide an on-call service.

In order to explore the national problem, this study could be repeated on a wider level to capture the needs from ENT Juniors across various deaneries in the UK. Alternatively, an adequately powered quantitative study assessing learning needs may be a valuable way to gain a representative picture,

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with generalisable findings. The Delphi method may provide a useful means to capture the learning needs of learners, but this must focus on the bottom-up needs of ENT Juniors providing an acute service.

- A learning needs assessments is a systematic process to provide educational intervention and improve patient safety
- This is the first qualitative learning needs assessment to identify the holistic needs of junior doctors entering new ENT attachments, including both technical and non-technical skills
- All interviewees recognised that their lack of knowledge and practical skills in ENT inhibited their independence in several aspects of the ENT first on-call role
- Interviewees favoured a bootcamp-style induction process, with simulated emergency scenarios utilising the near-peer model of teaching
- This study can help others provide an appropriate, needs-based clinical induction for their rotating junior doctor cohort in line with GMC guidance

Finally, any educational activities that are planned as a result of this research must be evaluated prospectively and systematically to ensure that they adequately address learners' needs, provide an objective improvement in clinical performance and positively impact patient safety. Further study is needed to understand how competence can be achieved and evidenced appropriately.

Conclusion

This study presents the findings of a learning needs assessment for ENT Juniors. Both junior and senior interviewees identified a need for further experience in practical interventional skills prior to starting ENT attachments to provide a safe on-call service. Fundamentally, the junior interviewees felt that the expectations of the role should be more clearly defined to empower them to act independently and scaffold their learning around the role's demands.

Respondents expressed an interest towards a standardised, bootcamp-style induction that allows simulated experiences in emergency ENT scenarios to provide additional training. Further research is needed to determine the generalisability of these findings and the impact of further educational activities on patient safety.

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