

## Main Article

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# Surgeon educator perspectives of implementing a national undergraduate curriculum in otolaryngology

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## Abstract

**Objective.** The General Medical Council will be implementing a national medical licensing assessment for all UK medical students by 2024–25. Surgeon educator perceptions on a national undergraduate curriculum in otolaryngology were reviewed accordingly.

**Method.** A mixed methods study was undertaken within a UK school of surgery assessing ENT surgeon educators. Perspectives on teaching content, quality and student experience were assessed with degree of agreement assessed (Likert scoring). Associated qualitative focus group sessions underwent detailed thematic analysis according to grounded theory.

**Results.** A response rate of 50 per cent was achieved involving 21 participants working across 14 hospitals. These showed strong agreement that implementation of a national curriculum would improve the standard of teaching delivered at a personal, institutional and national level. Further themes were identified relating to the personal, institutional and specialty related factors influencing practical delivery.

**Conclusion.** A series of practical recommendations are made to potentially assist the implementation of a national ENT curriculum.

## Introduction

Historically, medical schools maintained a degree of individual autonomy in delivering a doctor following five years of intensive undergraduate study. The various medical schools, however, have held widely differing interpretations of the requisite underlying knowledge and skills that should be demonstrated and their financial distribution of resources.<sup>1,2</sup> Traditional topics (e.g. anatomy, on which one medical school may spend a large amount of study time) within the curriculum could be covered much more briefly elsewhere.<sup>3</sup> Sub-specialist areas of medicine, such as ophthalmology or otolaryngology, may be significantly under-represented within undergraduate teaching.<sup>4,5</sup> From 2024, the General Medical Council intends to implement a medical licensing assessment in the UK. In keeping with this change, an associated shift to a national curriculum has been considered broadly within the UK medical education literature and otolaryngology in order to unify undergraduate experience.<sup>6,7</sup>

Our aim was to review the perceptions on future implementation of an undergraduate national curriculum in otolaryngology within a UK surgical training region. The focus of this initial study was on the specific perceptions of surgical educators as this process begins its ongoing development from theoretical concept to practical reality.

Surgeon educators represent an important group in the delivery of undergraduate teaching. They hold responsibilities for delivery of teaching to medical students on a weekly basis across a variety of hospital settings from lectures and tutorials to the bedside. They have a minimum experience in post-graduate teaching of medical students of five years. As such, they offer a unique and important insight into the challenges of undergraduate otolaryngology teaching 'on the front line' that can assist potential understanding as to how a national curriculum would best practically take shape. Additionally, perceived loss of autonomy through implementation of a national curriculum and associated resistance to change was felt to be most strongly represented within this cohort.

Teacher perceptions of the implementation process of this new strategy have not previously been examined, and areas of attention were the potential impact on underlying teaching content, teaching quality and the student experience. Teaching content was defined as what knowledge or skills should be transmitted from teacher to student fundamentally (i.e. 'what they should know'). Teaching quality was defined as the successful transmission of intended knowledge or skills from teacher to student.

## Materials and methods

The target sample selected for review were 42 surgeon educators, delivering regular undergraduate teaching within the North Thames (London) surgical training region. A

purposive sampling approach was taken to obtain the viewpoints, experiences and perceptions of these teachers using both quantitative and qualitative methods. Requisite ethical approval was obtained from the University of Leicester and local approval from the lead clinician overseeing undergraduate medical school teaching in otolaryngology. Informed consent was sought for participants with anonymity safeguarded.

A quantitative survey format was selected to obtain numerical data from a representative cohort as to their perception of applying a UK national curriculum in otolaryngology with 'real-time' secure and anonymised data collection.<sup>8</sup>

The questionnaire contained three sections. The first section included relevant demographic information with gender, level of training and undergraduate medical school recorded. The second section comprised closed question survey instruments to collect data on five-point Likert scale questions for measuring teachers' perspectives. The third section comprised open-ended questions for teachers to express their concerns and opinions about implementation of a national curriculum. A small pilot study was conducted before the actual data collection to ascertain overall clarity of the research instrument, although no concerns arose.

The questionnaire (Table 1) consisted of seven items of which five used a five-point Likert scale to rank the responses. The scale ranged from 1 (strongly agree) to 5 (strongly disagree) and was used to categorise the response of each surgeon educator to the questions. Successfully implementing a structural upheaval will require significant engagement with those delivering the curriculum to students. As such, uncertainty (a score of 3) is an equally important result as agreement or dissent.<sup>9</sup> Two questions were free-text areas allowing more detailed thoughts to be provided.

Subsequently, three separate focus group sessions of three to four individuals were adopted for qualitative evaluation.<sup>10</sup> Historically, small focus groups have been shown to have greater potential than larger focus groups.<sup>11</sup> These were recorded, anonymised and immediately transcribed in full. The interviewees' opinions on a national curriculum and undergraduate otolaryngology teaching were explored through a thematic coding approach undertaken by the lead researcher, underpinned by grounded theory.<sup>12</sup> Anonymised transcription of the audio recording was typed and printed. Comments were manually separated, compared, grouped and categorised accordingly. Each separate focus group transcript was assessed

in isolation, seeking to first identify codes that may lead to the creation of core categories. This process was then repeated for each of the three focus groups. Following assessment of the similarities and differences of the three focus groups, analogous codes and categories could be distilled further into discrete themes.<sup>13</sup> These then led to the eventual development of thematic networks for the overall subject matter and to interpret recommendations. Individuals were anonymised and referred to as T1–10 within the subsequent analysis.

Data analysis was performed using both Microsoft Excel® and Sofa Statistics™ packages. Parametric analysis was performed for the Likert scores as per the recent work of Norman,<sup>14</sup> which clarified the benefits of this over and above non-parametric tests. Median scores were used accordingly owing to the non-linear format of the five-point Likert score.<sup>15</sup>

## Results

### Participant characteristics

An overall response rate of 50 per cent (21 individuals) was achieved, which compares favourably with similar otolaryngology curriculum surveys.<sup>16</sup> This improves the overall generalisability of the survey, while the response rate may in itself hold additional value because engagement was on the basis of interest and perceived 'personal need'.

A breakdown by medical school attended and teaching style of individual surgeon educators was reviewed. Our cohort showed a considerable variation in background with the 21 individuals attending 12 of the 33 recognised UK-based medical schools. The three main medical school teaching styles were represented, with 14 per cent undertaking a problem-based approach as an undergraduate, whereas traditional and integrated approaches made up 43 per cent each. The mean undergraduate teaching experience of this cohort was eight years, highlighting a high level of experience.

### Teaching content

A summary of the data (Table 1) suggests participants were very supportive of broad goals of standardising teaching content from topics, resources, practical experience and overall length of time for the programme. Surgeon educators appear

**Table 1.** Percentage of respondents agreeing with statements describing potential teaching content in a national undergraduate otolaryngology curriculum

'I believe a national curriculum in undergraduate otolaryngology should include...'	Percentage agreement with statement (Likert score 1 or 2) (% (n))	Likert score (median)
Designated teaching content (specified topics)	100 (21)	1
Designated assessment objectives (national examination standards)	81 (17)	2
Minimum time allocation in teaching within specialty (i.e. number of days in otolaryngology)	86 (18)	1
Minimum time allocation in teaching according to topic (i.e. epistaxis)	47 (10)	3
Stipulated hours of consultant-led teaching delivered	43 (9)	3
Stipulated method of teaching delivery (e.g. small group or lecture)	62 (13)	2
Stipulated teaching setting (clinical environment/tutorial room)	57 (12)	2
Stipulated simulation training	47 (10)	3
Stipulated practical/surgical skills-based training	76 (16)	2
Provision of standardised student learning materials (e.g. handbook)	81 (17)	2

**Table 2.** Percentage of respondents agreeing or strongly agreeing with statements describing the intended aims of implementing a national undergraduate otolaryngology curriculum

'Goals of a national curriculum should be to...'	Percentage agreement with statement (Likert score 1 or 2) (% (n))	Likert score (median)
Teach students essential otolaryngology for future practice as a doctor (in any specialty)	100 (21)	1
Teach students surgical skills	57 (12)	3
Provide exposure to specialty of otolaryngology as a potential future career option	95 (20)	1
Limit variation and provide a consistent learning experience for students in otolaryngology	86 (18)	1
Provide national guidance to support provision of educational resources to the specialty	90 (19)	1
Provide national guidance to support time given to the specialty in context of varying medical school priorities	86 (18)	1

overall to wish to preserve a degree of institutional and educator autonomy within the overall structure of the national curriculum. They were less supportive of more prescriptive initiatives in teaching provision, particularly those stating who (consultant-led) would teach and how (setting or teaching method) teaching would occur. Clarity and consistency in the overall vision is crucial to the success of large-scale institutional change in education, and therefore the involvement of teaching stipulations other than specified content would need to be carefully considered.<sup>17</sup>

Table 2 highlights support for a broad range of distinct goals for a national curriculum in undergraduate otolaryngology. An essential principle of understanding a curriculum is assessment of its underlying aims in ensuring that the included content befits the intended purpose. Significant variation between the perceived aims of a curriculum as viewed by participants and the actual purposes of those implementing would likely manifest in poor overall delivery. A successful curriculum is one that when completed satisfies the original intentions behind its construction, essentially achieving its statement of intent.<sup>18</sup>

### Teaching quality

The level of support by participants for a national curriculum in potentially improving not only their teaching but teaching within medical schools nationwide was strong (Table 3). The interpretation of 'risk' from undertaking this process was also negligible, with only one individual feeling that it could adversely affect teaching innovation and no one feeling it would negatively impact on teaching within their institution.

These results appear to suggest there is confidence in this mechanism within our school of surgery as a potential conduit to institutional improvement.

### Student experience

Additionally, 19 surgeon educators felt that the students themselves would benefit from the implementation of a national curriculum, with 16 feeling it could improve overall access to educational resources. Interestingly, within higher education, much criticism has been made of the restrictive nature of national curricula,<sup>19</sup> but here there appears a degree of positivity and idealism as a method to advance teaching.

Classically, we acknowledge that more experienced staff are more resistant to changes in established practices.<sup>20</sup> Given the level of experience of the participants, it is interesting to see that only a third (33 per cent) feel that a barrier to implementation would be at the level of the teaching staff themselves (Table 4). Instead, what is demonstrated is that barriers are more likely to exist at the medical school level, with the lack of perceived need and incentive to motivate change in practice. All but two participants felt an absence of an over-arching authority to oversee the process, and perhaps given the literature demonstrating external involvement, this would benefit from further promotion.<sup>21</sup> These findings, although small in scale, provide us with knowledge on where the perceived challenges to this potential change exist and therefore illustrate the areas in need of attention to overcome them.

Participants' responses to the question on whether they would support the implementation of a national undergraduate curriculum in otolaryngology was overwhelmingly

**Table 3.** Percentage of respondents agreeing with statements describing the likely outcomes of implementing a national undergraduate otolaryngology curriculum on teaching quality and student experience

'Implementing a national curriculum in undergraduate otolaryngology will...'	Percentage agreement with statement (Likert score 1 or 2) (% (n))	Likert score (median)
Lead to an improvement in my teaching	86 (18)	1
Lead to improvement in teaching quality at my institution	90 (19)	2
Lead to improvement in teaching quality nationally	86 (18)	1
Adversely affect experience of medical student teachers at my institution	0 (0)	4
Adversely affect innovation in teaching	5 (1)	4
Improve the student experience at my institution	90 (19)	1
Improve access to educational resources	76 (16)	2

**Table 4.** Percentage of respondents agreeing or strongly agreeing with statements describing the possible barriers to implementing a national undergraduate otolaryngology curriculum

Potential barrier described	Percentage agreement with statement (Likert score 1 or 2) (% (n))	Likert score (median)
Reluctance by medical student teachers to engage (otolaryngology surgeons)	33 (7)	3
Reluctance by medical school to engage (lack of perceived need)	81 (17)	2
Fear of loss of individual medical school autonomy/identity	48 (10)	3
Lack of local incentive	76 (16)	2
Lack of central authority to drive national changes at a local level	90 (19)	2

supportive, with 95 per cent feeling they strongly agreed or agreed with the statement. Five per cent were unsure, with no disagreement as to the principle. This is an important aspect, given the level of influence the surgeon educators hold in the undergraduate teaching process.

### Qualitative data analysis

The participating individuals represented a mixture of sexes that is representative of modern otolaryngology training (40 per cent female)<sup>22</sup> and an overall experienced cohort in undergraduate education, with median time participating in regular undergraduate teaching of eight years. A summary of the thematic analysis process is shown below (Table 5).

### Teaching content

The question related to teaching content was: What are the perceptions of medical school educators on suitable teaching content in delivering an undergraduate otolaryngology national curriculum?

The goals of a national curriculum were felt to be to teach students otolaryngology for future practice as a doctor, provide aspirational exposure, support educational resources, limit variation and set amount of time for teaching. If adopted, a national curriculum, should be composed with emphasis on providing 'guidance' on content and avoid being overly paternalistic in its construction. It is felt this would provide the best opportunity to maximise innovation and avoid the national curriculum itself limiting excellent practice above the minimum baseline.

There was agreement on a minimum baseline for teaching exposure by students, national examination standards, involvement of practical skills teaching and provision of standardised teaching materials. Formal stipulations on the amount of consultant-led teaching time, method of teaching delivery, teaching setting or requirement for simulation training was met with uncertainty by the assessed cohort. On an individual level, daily work and on-call life would be improved through strengthening otolaryngology undergraduate training in the long-term. Teachers in otolaryngology are keen to place their specialty within the broader goal of creating 'good doctors'. There was recognition that otolaryngology represents a small comparative specialty and should not seek to over-develop otolaryngology training to the detriment of medical training in general.

### Teaching quality

The question related to teaching content was: What are the perceptions of medical school educators delivering an otolaryngology national curriculum on teaching quality?

It is believed by participants that adoption of a national curriculum would improve the standard of teaching delivered at a personal, institutional and national level. At our school of surgery, it was felt to be very unlikely to have an adverse effect on medical students or innovation in teaching delivered. There was belief that teachers' legitimacy as educators should be more transparent, with a form of training in teaching necessary for those delivering undergraduate teaching in otolaryngology.

### Student experience

The question related to teaching content was: What are the perceptions of medical school educators delivering an otolaryngology national curriculum on the student experience?

The importance of student experience to any widespread changes to the curriculum was viewed as key. A national curriculum in undergraduate otolaryngology was felt to be likely to improve the student experience and access to educational resources at our school of surgery. Barriers to delivery of implementation of a national curriculum for students were felt to be at an institutional rather than individual 'teacher' level. This would be through lack of local incentive, lack of central authority and lack of perceived necessity. These are areas that particularly require focus for potential successful delivery at our school of surgery; working with key institutional stakeholders with support from external organisations is perceived to be useful in this regard.

### Discussion

In 2015, there were 40 078 medical students training within the 33 UK medical schools,<sup>23</sup> and as such the implications of any large-scale changes to training should be considered with reference to the cumulative numbers involved. Otolaryngology pathology contributes a very large proportion of the day-to-day cases seen by doctors working as general practitioners in the UK. Previous analysis suggests this approximates to 25 per cent of all presentations to primary care.<sup>6</sup> When reviewed, this corresponds to a figure of 850 000 primary care patient encounters a year within the UK.<sup>24</sup>

Multiple studies have shown wide variation in the overall provision of undergraduate otolaryngology. On average, less than 8 days of teaching were provided to students over a 5-year period, and 22 per cent of individuals had no otolaryngology clinical attachment within their UK undergraduate clinical training.<sup>25</sup> Powell *et al.* showed undergraduates were significantly less confident with otolaryngology history-taking, examination and management compared with cardiology clinical competencies ( $p < 0.001$ ).<sup>26</sup> Interestingly, the same study demonstrated that teaching modalities with a lower perceived

**Table 5.** Thematic network displaying the personal, institutional and external factors related to use of a national curriculum in undergraduate otolaryngology

Theme	Section	Sub-section	Illustrative summary/quote
Personal factors: 'Individuals, perception on their role as a teacher using a national curriculum in otolaryngology'	Teaching content	Minimum expected knowledge	'Formalising minimum knowledge base would be positive as a teacher...' (T4). No participant suggested via the focus groups that the present curriculum was currently sufficient.
		Re-inventing the wheel	'It would need to be more than national guidelines that are then not used, not just content on a website' (T3).
		Avoiding divisive variation	'May be helpful to remove some of the individuality and autonomy from local trainers...you realize how much variation exists the more you teach' (T11).
		Improved post-graduate training	'It allows realistic expectations for me as a trainer to know what has been provided before, avoiding over and under expectations given movement of students across the country as part of their training' (T6).
	Teaching quality	Correct individuals delivering teaching	'Important that personnel is considered...(non-clinicians) can't deliver the teaching on microscopic examination of the ear etc that we can' (T3).
		Ensuring trained teachers	'You need to make sure you have had training in teaching. Not all doctors are good teachers, we need training' (T1).
Student experience	Assisting aspirations	There needs to be an aspirational element, explicitly built in to the syllabus...to tailor towards the common but also allow those to explore other interests is the frisson of medical education' (T2)	
	Adjusting to loss of apprenticeship	'it always was an apprenticeship model...learning by community, now where is the community owing to shift work etc?...I don't think it can work like that anymore' (T3)	
Institutional factors: 'Individuals, perception of medical school institutions using a national curriculum in otolaryngology'	Teaching content	Keeping it core	'Otolaryngology is fairly compact which means it would be fairly easy to deliver top 10 presentations to cover...we are actually better suited than many broader specialties' (T8). 'You would need to emphasise a third of GP practice is in otolaryngology' (T4) 'Focus on what a day 1 F1 should know' (T5).
		Keeping it flexible	'Important to leave room for interpretation' (T8). 'Very strongly against it being too dogmatic' (T3).
		Medical School Dialogue National Resource Provision	'It is in our vested interest as a specialty to be more involved and be part of the University's agenda' (T9). 'Delivery of resources may prove more effective through a central process...you could develop online resources and roll out to an undergraduate setting' (T5).
	Teaching quality	Institutional leadership	'Top-down approach filters down. It becomes a habit, an ethos for all' (on Consultant teaching). 'Recognising an SPA for Consultant teaching would improve teaching productivity of the unit – ensure it (national curriculum) is being used' (T6).
		Failure of medical student teaching	'Lack of basic knowledge in otolaryngology is impacting on on-call and referral service' (of doctors in general) (T8). 'Already within our time, the overall standard of knowledge appears below expectation' (T10).
	Student Experience	'Autonomy eroding respect'	'It seems a societal thing – people feel they can turn up when they want and get spoon fed' (T2). 'Sitting at side of clinic isn't considered as value any more' (T10).
		'Influential student opinion'	'Feedback for every placement decides where medical students go...placements that didn't do well were cut short ... (a good curriculum) would make a difference' (T8).
		'Personal experience to combat consumerism'	'The best attachments, everyone knew your (the student's) name' (T1). 'They (students) want one-to-one and bedside teaching' (T10).
	External factors: Individuals' perception of use of a national curriculum with respect to specialty of otolaryngology surgery	Specialty branding	'I don't think we have to wait for others (national curricula in other surgical subspecialties). I think things work because there is a drive (within otolaryngology) to make things happen' (T9).
A persuasive standard		'It is in our vested interest as a specialty to be more involved and be part of the University's agenda' (T8). 'Other linguistic terms frequently used included 'power' and 'weight'. A recognised standard gives local departments more weight to take to medical school to suggest change' (T4).	
Timely context for change		'It may be it becomes the decision of others and this should lead to us being more involved' (T4 discussing options of a surgical subspecialty national board exam). 'As otolaryngology we need to invest in this so that our portion is well thought out' (T5).	

(Continued)

Table 5. (Continued.)

Theme	Section	Sub-section	Illustrative summary/quote
		Specialty as a checkpoint	'Who is best placed to decide what students should know? Those teaching students or those seeing what doctors don't know on a regular basis or those doing both' (T3). 'Important to recognise medical student numbers are going up, there is a risk of diluting the experience on the basis of necessity' (T5).
Individuals' perception of use of a national curriculum with respect to medicine		Preserving the brand	'Might have to be realistic in relation to time...training weighted in relation to understanding in general medicine/general surgery and primary care' (T5). 'It'd be difficult to work out how fits in' (with other priorities) (T8).

Individuals were anonymised and referred to as T1–10 within the analysis. GP = general practitioner; F1 = Foundation Year 1 Doctor; SPA = Supporting Professional Activities

educational value were generally offered more frequently than those with a higher perceived educational value. This seems to highlight deficiencies in the teaching quality as well as content within otolaryngology. Dramatically, Clamp *et al.* highlighted that approximately 33 per cent of community doctors in South West England had no hospital experience or any post-graduate training related to otolaryngology at all.<sup>27</sup>

Staff engagement is crucial in implementing the changes required for a nationally driven curriculum. Curriculum creation is only a relatively small part of the overall process, and dissemination and support in delivery is key. Overall, the need to seek staff engagement and involvement in the process of change mirrors the Japanese Toyota Production System concept of 'Jidoka'.<sup>28</sup> Here, we are seeking to identify the potential problems of a national curriculum 'at source' through the individuals most acutely involved in the educational 'production line'. As such, the data identifies specific barriers to the eventual implementation of a future national curriculum.

Current work has sought to map the otolaryngology curriculum at UK medical schools in order to try to better facilitate any potential adoption in terms of content.<sup>7</sup> Constable *et al.* produced survey data looking at perceived otolaryngology knowledge amongst non-otolaryngology doctors, which was felt to be universally poor and in need of further attention.<sup>16</sup> Overall, there has been a predominant focus on what students should know, but much less emphasis on how they should come to know it.

Outlining a curriculum involves simultaneously setting national standards in undergraduate otolaryngology education. This is subject to concerns as to the overall level selected. Acceptance of a diminished standard of student understanding or practical ability could create an arbitrary high pass rate, but clearly this could have serious ramifications for future patient care and damage trust in the very profession of medicine.<sup>29</sup> A potential analogous concern at the level of the medical schools themselves is that their overall academic standards and associated expectations may vary, and adoption of a universal standard may be actually below their preceding expectations of what is satisfactory. This was identified both through a systematic review and the General Medical Council consultation exercise.<sup>23,30</sup>

Substantial 'buy in' at the local level is essential for the initiative. It is important to recognise, however, at the level of those personally undertaking delivery of the curriculum, with 95 per cent of those in favour of the initiative, that this has already occurred to a degree. Localism may hold a value in driving innovation, yet this should not be at the expense

of allowing fundamental deficiencies to continue within a dysfunctional system.

The large-scale re-organisation of a national curriculum would be a convenient time for departments to perform local rationalisation and assessment of their own provided teaching. It is right to question the dogma of established teaching practice and reframe it in the context of seeking proven successful practice.

This study involved a sample of surgeon educators based in one training region, working in 14 different hospitals. However, the opinions gleaned are obtained from the alumni of 12 UK medical schools with an associated variety of undergraduate experience.

Future large-scale involvement of medical school academic staff and students themselves are important analogous steps to prepare for successful adoption of an otolaryngology national curriculum, yet this group are integral to the perceived success or failure of this change.

- Evaluating potential implementation of an otolaryngology national curriculum was previously unassessed within the medical literature
- Surgeon educators felt a national curriculum would improve the overall standard of teaching at a personal, institutional and national level
- Widespread agreement was shown for a minimum baseline for a national otolaryngology curriculum
- A total of 95 per cent of surgeon educators in otolaryngology within a UK school of surgery were found to support the concept of a national undergraduate curriculum in ENT
- Creating a national curriculum appears to offer a philosophically accessible and popular re-imagining for future undergraduate ENT training

This is the first attempt to seek perspectives on implementation of a national curriculum in otolaryngology and how this may be best achieved by those involved in its delivery. Our findings would appear to be transferable to other similar surgical subspecialties (e.g. ophthalmology or urology as well as geographically to other countries internationally).

## Conclusion

Evaluating potential implementation of a national curriculum from those involved in the regular practical delivery of undergraduate medical education was previously unassessed within the medical literature. Strong agreement was shown to statements that a national curriculum would improve the overall standard of teaching delivered at a personal, institutional and national level. There was also widespread agreement on a minimum baseline for teaching exposure by students,

national examination standards, involvement of practical skills teaching and provision of standardised teaching materials. A total of 95 per cent of surgeon educators in otolaryngology were found to support the concept of a national undergraduate curriculum. Creating a national curriculum is not a panacea to cure all 'ills' in current local otolaryngology teaching, but it does appear to offer a philosophically accessible and universally popular re-imagining for future undergraduate otolaryngology training.

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