

Reply

Amelia Lancaster takes responsibility for the integrity of the content of the paper

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A 2023 study of ENT undergraduate training in the UK. Has this improved?

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Abstract

Objectives. Otolaryngology (ENT) plays a crucial role in healthcare, yet undergraduate education in the United Kingdom has historically not reflected this. This study aimed to assess the delivery of ENT education, focusing on teaching methods, clinical placements, and assessment practices.

Methods. An online questionnaire was distributed to medical students. Data were collected via Qualtrics from 5 August 2023 to 17 October 2023.

Results. Forty medical schools were involved. Thirty-seven schools had compulsory ENT teaching however 20 per cent lack an ENT placement. Clinical placements varied, with an average length of 7.3 days. Assessment of ENT knowledge included Objective, Structures, Clinical Examination stations (90 per cent) and written exams (80 per cent).

Conclusion. The study highlights persistent gaps in ENT education. Deficiencies in clinical exposure and lack of alignment with national guidelines indicate the need for improvement. As the Medical Licensing Assessment approaches, standardising assessments may address disparities but should be accompanied by comprehensive changes in teaching methods and placements.

Introduction

Otolaryngology (ENT) holds a significant position in the United Kingdom's healthcare landscape. Issues related to ENT account for up to 50 per cent of paediatric general practice consultations.¹ Nevertheless, the representation of ENT education in medical schools historically has been inadequate, failing to mirror its significant presence in general practice, as evinced by up to 30 per cent of medical schools omitting a compulsory ENT rotation.^{2,3}

One article highlights the alarming deficiency in medical students' preparedness to handle ENT cases. A survey of 389 final-year medical students in the UK revealed that over 50 per cent lacked confidence in distinguishing between healthy and pathological ear drums. Moreover, fewer than one-third of the students felt adequately equipped to manage common ENT emergencies and elective complaints.⁴ Such issues extend beyond the UK, with similar concerns reported in the United States.⁵

Despite the high incidence of ENT conditions in general practice, only 26 per cent of general practitioners had an ENT post during their training.⁶ This lack of ENT-specific training among general practitioners directly influences the rate of ENT referrals, which tend to be higher in general practitioners with less ENT exposure.⁷ This emphasises the importance of ENT training at an undergraduate level to minimise inappropriate referral of patients who should be managed within a primary-care setting.

A 2004 survey on undergraduate ENT training at UK medical schools showed that 42 per cent of the 27 medical schools lacked a formal assessment of clinical skills and ENT-related knowledge.³ In addition, Mace and Narula (2004) concluded that medical students received minimal clinical training with 20 per cent of graduates having no ENT experience at all. They also found significant variability in ENT experience between medical schools.³

Since the 2004 paper, 17 new medical schools have been established⁸ and curricula have evolved. Crucially, the General Medical Council (GMC) has issued updated guidance to medical institutions. While subsequent studies have been published, they are limited by incomplete medical school datasets or do not focus solely on teaching curricula.^{9,10}

Aims/Objectives

The aim of this study was to present an updated iteration of the prior studies by examining the delivery of ENT teaching, directly observed procedures, placement and assessment practices at UK medical schools. The study also aimed to identify disparities in the provision of ENT education among medical schools. In addition, we aimed to reach out to the GMC by a freedom of information request to discern who is responsible for approving the undergraduate UK curriculum and the process by which approval is granted.

Materials and Methods

Study design and population

We conducted a cross-sectional multicentre study involving medical students enrolled in the 2022–2023 academic year at both GMC-accredited and non-GMC-accredited medical schools in the UK. The study aimed to include one medical student from each UK medical school, with a maximum of 44 participants. This was based on the GMC list of institutions authorised to award UK medical degrees.⁸ Seven medical schools were undergoing review for this authorisation. The Student and Foundation Doctors in Otolaryngology (ENT-UK) group provided a list of student representatives from most UK medical schools, along with their contact information.¹¹ For schools without a representative, we reached out to the relevant university's surgical, ENT and medical societies.

An online questionnaire developed on Qualtrics was distributed to medical students in the UK. Participants were contacted via email by two researchers using National Health Service (NHS) or institutional email addresses. The initial email contained an information sheet describing the study's objectives, the expected duration of participation, potential risks and benefits and plans for dissemination of results. The email also included a link to the Qualtrics questionnaire. Submission of a completed or partially completed survey served as implied consent to participate, and participants agreed to allow their data to be used for the study.

All data were collected using Qualtrics, which is hosted in the European Union (EU) under UK General Data Protection Regulation regulations. Data were collected anonymously, with no participant identifiers. Qualtrics ensured that the medical school affiliations of the participants were separated from their survey responses. Data collection occurred from 5 August 2023 to 17 October 2023.

Questionnaire

The questionnaire consisted of 12 questions with a focus on 3 domains: ENT teaching, ENT placement and assessment of ENT knowledge/skills. The questionnaire had a mixture of multiple-choice and free-text options. It was anticipated that the time to complete the survey would be approximately 10 minutes.

Study outcomes

The main outcome is the level of ENT teaching in medical school's curriculum. The secondary outcomes included: the number and type of clinical skills being taught, clinical attachments and variations in curricula among different medical schools.

Data analysis

All data were extracted from Qualtrics and analysed with GraphPad Prism (GraphPad Software v10.1.1). When a medical school had multiple respondents, we merged their responses into a single dataset.

Ethical approval

The study received ethical approval from the St George's University of London Research Ethics Committee (reference: 2023.0139). By partaking in the survey, participants consented to the use of their data for the purpose of the study.

Reporting guidelines

The Strengthening the Reporting of Observational Studies in Epidemiology ('STROBE') checklist for cross-sectional studies was used for this paper.

Results

Responses were received from 40 UK medical schools (Appendix). This included all 37 GMC-accredited medical school courses and three schools in the process of seeking accreditation. However, we did not receive responses from four non-GMC-accredited universities.

ENT teaching

Among the 40 medical schools surveyed, 37 had compulsory ENT teaching as a curriculum component. In contrast, one medical school offered ENT as an optional teaching course, while two schools did not provide any form of ENT teaching.

For medical schools that incorporated formal ENT education, the most widely utilised teaching methods were lecture-based teaching (89 per cent, 33/37), followed by clinical skills training (68 per cent, 25/37) and self-directed learning (65 per cent, 24/37). A portion of students (18.9 per cent) responded as 'other,' and further elaboration revealed that 'placement learning' and 'clinical placement exposure' were integral aspects of their formal teaching experience (Figure 1).

All 40 medical schools required students to be proficient in various ENT-related observed and performed skills to pass their courses (Figure 2). Specific clinical examinations were consistently covered across most curricula, including otoscopy and ear examination (90 per cent, 36/40), tuning fork hearing assessments (88 per cent, 35/40) and neck and thyroid examination (85 per cent, 34/40). However, only 50 per cent of medical schools required training in nasal examination, and a mere 5 per cent covered nasal packing. Other reported examinations included the Dix Hallpike and Epley manoeuvres. No single procedure or skill is universally covered by all medical schools.

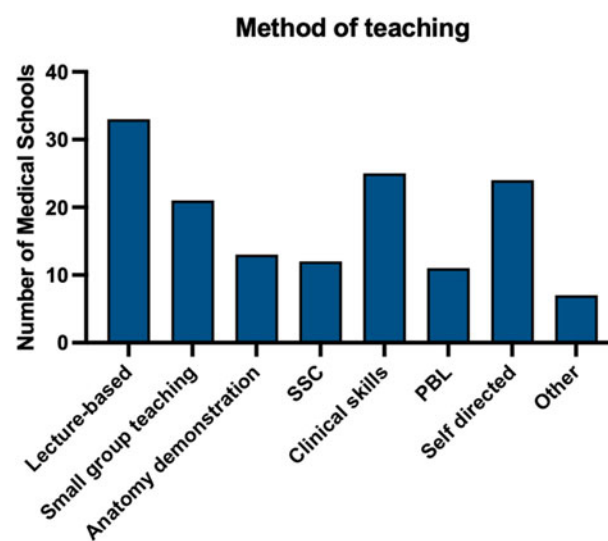


Figure 1. Teaching methods employed by medical schools showing the methods of ENT theory-based teaching at UK medical schools ($n = 37$). One school has optional teaching and another two schools do not currently have ENT teaching implemented in their curricula (not shown in the figure); SSC = student-selected component. PBL = problem-based learning.

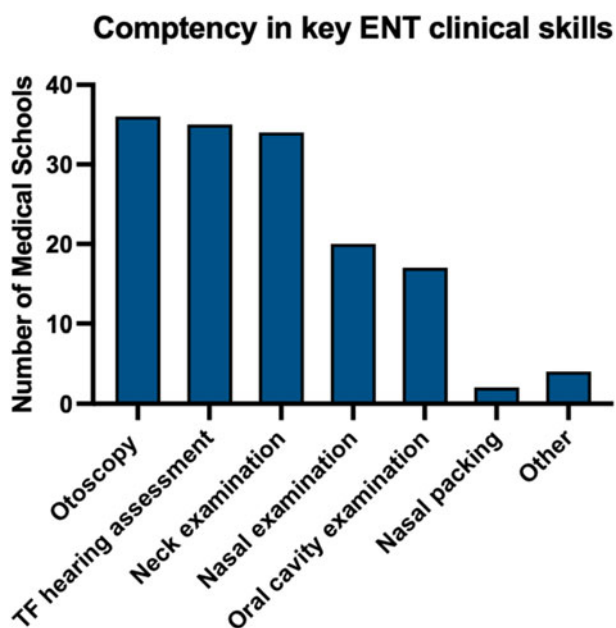


Figure 2. Clinical skills required by medical schools. Medical schools in our survey ($n = 40$) have established clinical skills that students are required to know for successful completion of their medicine course. We recorded mandatory ENT-related skills; TF = tuning fork.

ENT attachments

Mandatory formal ENT clinical attachments were provided in 32 out of the 40 participating medical schools, with 8 (20 per cent) not requiring such placements. In more than half of these cases (59 per cent), the clinical placements were combined with other medical specialties. Within the 32 schools offering ENT clinical placements, the majority (30/32) provided a single ENT placement as part of their program. One medical school had two ENT placements, and another had three.

The duration of ENT attachments exhibited significant heterogeneity among medical schools, with an average length of 7.3 days and a range of 1–35 days (Table 1) (Figure 3). Three medical schools had ENT placements that extended more than 10 days (Figure 3). These placements typically occurred during the third and fourth years of the medical curriculum (38 per cent and 53 per cent, respectively) (Table 1). The most prevalent types of clinical exposure on these ENT attachments were in outpatient clinics (94 per cent, 30/32) followed by day-surgery cases (72 per cent, 23/32), main operative theatres (69 per cent, 22/32) and on-call team (47 per cent, 15/32) (Figure 4).

Assessment of ENT knowledge

All 40 medical schools had at least one assessment of ENT knowledge in their course. The predominant methods for assessment were Objective, Structures, Clinical Examination (OSCE) stations employed by 90 per cent (36/40) of the schools. Subsequently, written exams in the single-best-answer format and directly observed procedures were also prevalent assessment methods (80 per cent (32/40) and 48 per cent (19/40), respectively) (Figure 5). Assessment of ENT knowledge spanned from year 1 to year 6, with a large proportion of students (82.5 per cent) undergoing assessment in year 4.

General Medical Council (GMC)

In response to a freedom of information request, we learned that the GMC do not set the undergraduate medical

Table 1. Outline of structure of ENT placements (the number, length of ENT placements and what medical school year they take place; additionally, we included data on if the ENT attachment was combined or not)

Medical Schools: n (%)	
How many ENT attachments are there?	
– 1	30 (94%)
– 2	1 (3%)
– 3	1 (3%)
How long are the ENT attachments? (average)	
	7.3 days
What year is(are) the ENT attachment(s) in?	
– Year 1	0 (0%)
– Year 2	0 (0%)
– Year 3	12 (38%)
– Year 4	17 (53%)
– Year 5	5 (16%)
Are the ENT attachments combined with other specialities?	
– Yes	19 (59%)
– No	12 (38%)
Optional	1 (3%)

curriculum. Instead, each medical school must set their own curriculum from which they must demonstrate that medical students are able to meet the ‘Outcomes for Graduates’ guidance generated by the GMC.

Discussion

To our knowledge this is the first UK medical school ENT study to include 40 medical schools, including those awaiting GMC accreditation. Our study found significant heterogeneity in the otolaryngology experiences offered across these institutions in teaching, placements and examinations.

A significant percentage (20 per cent) of medical schools reported a lack of clinical ENT attachments. Among those

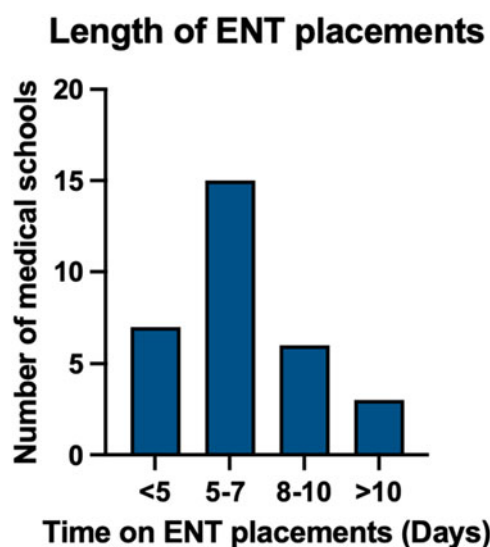


Figure 3. Length of ENT placements among the medical schools that had ENT placements ($n = 32$) showing the distribution of total time spent on ENT placement throughout a student’s time at each school; mean number of days was 7.3 with a range of 1–35 days.

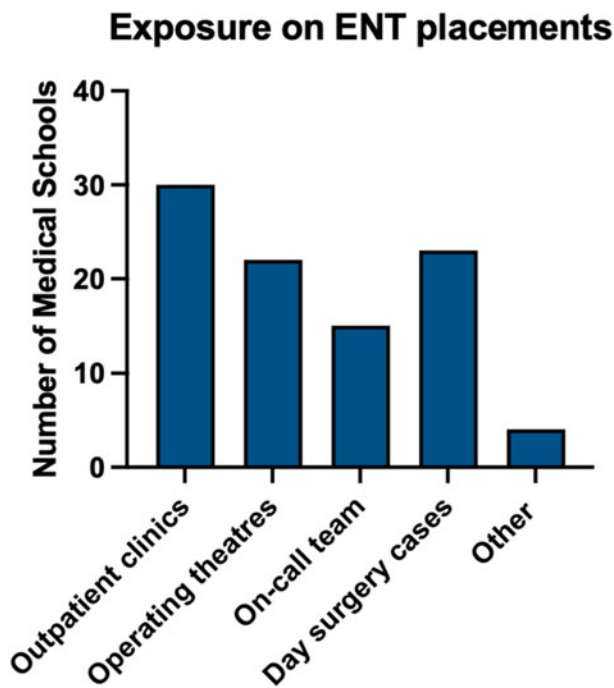


Figure 4. ENT placement components showing the frequency of various exposures encountered on students' ENT clinical placements ($n=32$); eight medical schools did not have ENT clinical placements (not shown in the figure).

that offered placements, the placements averaged 7.3 days of the overall medical school curriculum. Notably, this reflects an absence of improvement from earlier reports in 2004 and 2011, which documented 7.4 and 8.4 days, respectively^{3,12}.

Almost all medical schools had compulsory ENT-related teaching at some point within their program. Medical schools primarily relied upon lecture-based, clinical skills sessions and self-directed learning. In 2021, a virtual consensus forum involving 27 students and 18 junior doctors from 15 medical schools mapped the new UK Medical Licensing Assessment curriculum¹³ to ENT-content delivery preferences.¹⁴ Participants placed particular emphasis on clinical teaching

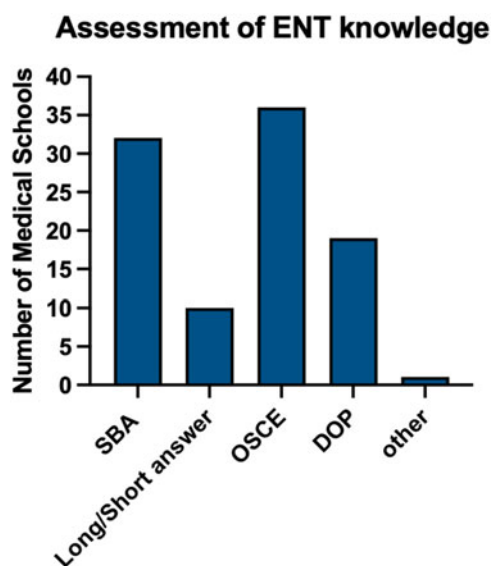


Figure 5. Assessment of ENT knowledge showing the methods employed by medical schools to assess students ENT-related knowledge ($n=40$); single best answer (SBA) and long/short answers are portions of written exams; Objective, Structures, Clinical Examination (OSCE) and directly observed procedures (DOP) assess a student's communication and skills related to ENT.

and small-group seminars, signalling a desire to shift away from larger group didactic sessions. This consensus, while limited in representation, stands out as a unique opportunity for students to articulate their teaching preferences aligned with the Medical Licensing Assessment curriculum.

In the GMC's "Outcomes for Graduates: Practical Skills and Procedures",¹⁵ medical students are expected to perform basic otoscopy and identify common abnormalities upon graduation. The corresponding "Outcomes for Graduates" guidance¹⁶ outlines that students should be able to perform an appropriate physical examination based on clinical presentations. While 90 per cent of medical schools provided otoscopy teaching and over 80 per cent provided tuning-fork and neck examination teaching, the implementation of otoscopy training in the curriculum does not guarantee that students are adequately prepared to distinguish between a healthy and pathological eardrum in practical settings. A survey involving 389 final-year students revealed that more than 50 per cent lacked confidence in this skill.⁴ Another study, presenting 72 high-definition images to 60 medical students, found that the mean score for identifying pathologies was 54 per cent, with the total number of otolaryngology rotations proving predictive of diagnostic accuracy.¹⁷ This study did not require students to manually use the otoscope, a crucial aspect of clinical practice. To meet the GMC outcomes for graduates, it is imperative to ensure sufficient exposure to ENT.

This contrasts with the outcomes for graduates proposed by ENT UK, the association of ENT surgeons in the UK,¹⁸ which aims to "outline the learning objectives in ENT that should be achieved during undergraduate training" encompassing not only otoscopy but other crucial ENT skills such as nasal packing, examination of the oral cavity and nasopharynx as well as tuning fork hearing assessment. Our study found significant gaps between these recommendations and current medical school practices. Approximately 50 per cent of schools provide teaching on nasal- and oral-cavity examination, and an even smaller proportion, 5 per cent, cover nasal packing. Medical students are known to exhibit notable deficiencies in diagnostic awareness of oropharynx examinations and pathology, identifying only 28 per cent of common oral diseases.¹⁹ For example, epistaxis is a common emergency presentation, with 1 in 100 emergency presentations involving epistaxis in the UK.²⁰ Nevertheless, 75 per cent of junior doctors lack confidence in managing epistaxis.²¹ Given that most junior doctors only receive ENT teaching in medical school, they should be trained to a proficient level in these commonly utilised skills.

Clinic time on placement emerged as the most cited clinical exposure. In numerous studies, students have ranked clinics as having the highest educational value.^{4,12} While most medical schools provide opportunities for day surgery and exposure to the main operating theatre, beliefs regarding attendance in ENT theatres are less favourable, and perceived to offer lower educational value.^{4,12} Within a focus group reported by Stark,²² some medical students described theatre time as "absolutely pointless". Given that ENT placements are typically only 7.3 days and there are prevailing negative perceptions around theatre attendance, absenteeism becomes a notable challenge.¹⁰ The potential exacerbation of this issue is underscored by the impending Medical Licensing Assessment in 2025, as a failure of placements to align with examination content may worsen the situation. A survey of 152 students revealed a desire to actively participate in common operations, observe anatomy, and learn about diseases.²³ Another

Table 2. Acknowledgment of medical student contributors

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Muhammad Nayeem Ahmed
Karola Meunier
Siddharth Komperla
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Jessica Stewart Hainsworth
Aditya Menon
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(Continued)

Table 2. (Continued.)

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university reported that fewer than 50 per cent of their students have observed common ENT operations.²⁴ Implementing small group tutorials before theatre sessions could guide students through procedures and common pathologies, enhancing their confidence and fostering increased engagement in their learning.

It has been well documented that crucial factors influencing future medical career choices include early exposure, duration of clinical exposure and time spent practicing practical procedures, and these overall spotlight the current shortfall in ENT education.²⁵ Eighty per cent of students at one university felt their exposure to ENT needed to be increased to consider it a career.²⁴ Given that a considerable proportion of doctors in foundation training lack exposure to an ENT rotation, it is crucial during medical school to establish a foundation that encourages students to consider ENT as a prospective career and a source of inspiration for future surgeons.

The widespread adoption of OSCE-style examinations and the use of single-best-answer format questions, which is embraced by most medical schools, is set to become a universal requirement. This is due to the impending Medical Licensing Assessment, which encompasses an applied knowledge test and a clinical and professional skills assessment.¹³ The Medical Licensing Assessment's content map includes a dedicated section focused on ENT presentations and conditions, necessitating that students from all medical schools attain a certain level of proficiency in ENT knowledge.¹³ The introduction of the Medical Licensing Assessment is anticipated to standardise the assessment process during the clinical years of medical education, which should minimise heterogeneity. However, variations may persist in pre-clinical ENT knowledge assessments.

- The historical inadequacy of ENT education in UK medical schools has raised concerns about students' preparedness for clinical practice
- This is the first assessment of ENT education in 40 medical schools; including non-GMC-accredited schools
- Twenty per cent of medical schools do not have a compulsory ENT attachment
- Heterogeneity persists in the provision of ENT education
- Deficits in placement exposure underscore the need for ongoing improvements in undergraduate ENT education

In a formal response to our group, the GMC clarified that they need more authority to set the undergraduate medical curriculum that emphasises autonomy of individual medical

schools in curriculum design. In recent standard and guidance documents, the GMC has stated, “medical school curricula must give medical students experience in a range of specialties, in different settings, with the diversity of patient groups that they would see when working as a doctor.”¹⁶ This, therefore, means future doctors will be exposed to a broad spectrum of specialties and patient populations that align with the evolving demands of modern healthcare.

The limitations to our study are linked mainly to the non-random participant recruitment, which poses an increased risk of sampling bias. Specifically, perceptions of teaching and experiences can vary between participants at the same medical school. The cross-sectional design provides a snapshot but may not capture ongoing dynamic changes in medical curricula. Additionally, data from all medical schools could not be secured, therefore reducing the external validity of our findings. Nevertheless, all GMC-accredited medical schools did participate.

Conclusion

In summary, this study offers valuable insights into the state of ENT education in UK medical schools. Unfortunately, there has been little progress in terms of ENT teaching methods and placement length since 2004. The identified deficits in clinical exposure, alignment with national guidelines, and the autonomy of medical schools highlight the ongoing need for improvements in undergraduate ENT teaching. The approaching Medical Licensing Assessment will standardise assessment across medical schools.

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Competing interests. The authors declare none.

Ethical standards. This study was approved by St George’s University of London research and ethics committee (reference: 2023.0139).

Data availability statement. Data are available upon request.

Author responsibilities. The authors confirm contribution to the paper as follows: study conception and design: AL + AS + NT; data collection: AL + AS; analysis and interpretation of results: AL + AS; draft manuscript preparation: AL. All authors reviewed the results and approved the final version of the manuscript. All authors agree to be accountable for all aspects of the work.

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Appendix. List of participating medical schools

Part 1: GMC accredited (n = 37)

The University of Aberdeen
Aston University
Anglia Ruskin University
The University of Birmingham
The University of Bristol
The University of Buckingham
The University of Cambridge
Cardiff University
The University of Dundee
The University of East Anglia
The University of Edinburgh
The University of Exeter
The University of Glasgow
Imperial College London
Keele University

King's College London
Lancaster University
The University of Leeds
The University of Leicester
The University of Liverpool
The University of Manchester
The University of Newcastle
The University of Nottingham
The University of Oxford
The University of Plymouth
Queen Mary University of London
The Queen's University of Belfast
St George's University of London
Swansea University
The University of Central Lancashire

The University of Sheffield
The University of Southampton
University College London
The University of Warwick
A combination of the University of Brighton and the University of Sussex
A combination of the Universities of Dundee and St Andrews
A combination of the University of Hull and the University of York

Part 2: Awaiting GMC accreditation ($n = 3$)

Brunel University London Medical School
Edge Hill University Medical School
University of Sunderland School of Medicine