The Journal of Laryngology & Otology (2016), ***130***, *516–520.*

doi:10.1017/S0022215116007957

REVIEW ARTICLE

In the face of increasing subspecialisation, how does the specialty ensure that the management of ENT emergencies is timely, appropriate and safe?

M J ROUHANI

University of Cambridge School of Clinical Medicine, UK

Abstract

Background: The field of ENT surgery is one of the most varied specialties, with numerous subspecialties and continuing divergence. With this evolution there comes, however, a risk that specialists become de-skilled in certain areas. In the case of ENT emergencies, this can be particularly dangerous.

Methods: Current guidance from relevant UK professional membership bodies regarding emergency surgery provision was inspected and a literature search was performed to identify studies relating to management of ENT emergencies in the context of increasing subspecialisation.

Results and conclusion: The specialty currently has provisions in place to ensure timely, appropriate and safe management of emergencies, in the form of guidelines and emergency clinics; however, there is scope for improvement of the system.

Key words: Specialization; Otorhinolaryngology; Emergencies

Introduction

> 'As a surgeon concentrates on a single disease and becomes more specialized, he or she becomes less competent in treating other diseases. The specialist becomes disease-centered rather than patient-centered'.[1]

The field of ENT surgery, or otolaryngology, was one of the first to diverge from the practice of medicine as a whole, with the amalgamation of the fields of otology, a surgical discipline, and laryngology in the early twentieth century.[2] The specialty remains one of the most diverse, and continues to diversify further; within ENT surgery, the main recognised subspecialties according to ENT-UK are head and neck surgery, otology, skull base surgery, thyroid and parathyroid surgery, rhinology, facial plastic surgery, paediatrics, and laryngology. Subspecialisation in ENT surgery was a formative force in the specialty's inception, and continues to be a trend amongst its bifurcating disciplines, as reflected in the expansion of fellowship opportunities in recent years.[3,4]

However, this trend of subspecialisation creates a catch-22 within surgical care services. Whilst the expertise that comes with subspecialisation can be greatly beneficial, there is the danger that surgeons will become 'de-skilled' and less competent to a certain degree in other, more general areas of their specialty for which it is expected that they will provide emergency cover. A concern in most surgical specialties, ENT is no exception as subject to this phenomenon.

The specialty

The term 'specialty' as it is used in the phrasing of this question can mean either the structure and division of ENT itself as a subject or academic specialty, or the specialty as comprised by its specialists, that is, the working body of surgeons and practitioners. Initial distinctions at an academic level proliferate downwards to affect the division of medical labour, and the allocation or referral of patients. This is an inevitable pattern in the systemic organisation of medicine and surgery within this country, and it is beyond the scope of this essay to consider the usefulness of greater holism at the academic roots. Nevertheless, there exist organisations in the UK that represent each of the surgical specialties both as academic divisions and as divisions in praxis, such that their documentation exemplifies the current state of both these implications of 'the

Presented (and awarded the ENT-UK Undergraduate Essay Prize 2014) at the Annual General Meeting of ENT-UK, 6 February 2015, London, UK.
Accepted for publication 19 February 2016 First published online 10 May 2016

specialty'. The British Association of Otolaryngology – Head and Neck Surgery, or ENT-UK, is one such provider representing the field of ENT surgery, and documentary guidelines are also provided by the Royal College of Surgeons of England, to guide the management of surgical emergencies.

Subspecialisation

Surgery is an ever-changing field that is constantly adapting to incorporate advances in techniques and technology, to enable continual progression with the aim of optimising patient care. Subspecialisation is one of the ways in which this is occurring, and the levels of subspecialisation are increasing across the board,[5,6] not only in ENT. The advantages of this movement are countless: on an individual basis, it enables surgeons to become pioneers in their respective fields; within a hospital's organisation, care may be provided by individual surgical units; on a regional level, tertiary centres of excellence may be established; and from the perspective of the patient, better care will be delivered by experienced surgeons in the appropriate field.

This subspecialisation is, in fact, explicitly encouraged within the Intercollegiate Surgical Curriculum Programme for otolaryngology, with outlined advice to trainees that 'all [special interests] are part of the ORL [otolaryngology] curriculum to be covered in Higher Surgical Training'.[7] Additionally, in the Joint Committee on Surgical Training guidelines for the award of a Certificate of Completion of Training ('CCT') in otolaryngology, it is stated that 'trainees should be able to demonstrate areas of specialist interest by advanced surgical or medical experience in logbook and/or CV [curriculum vitae]. E.g. fellowships (UK or overseas, including interface fellowships), attendance at specialist combined clinics and documented logbook experience of large caseload in chosen area of special interest'.[8]

Indeed, it has been shown that the vast majority of trainees aim to pursue a subspecialty interest in ENT surgery at consultant level.[9] The issues surrounding emergency care versus subspecialisation may be resolved by ensuring that all trainees are competent in general ENT surgery for the first four years, whilst the last two years are mainly devoted to the subspecialty interest.[10] The specialty as a whole would thus ensure that trainees are able to manage emergencies in a timely, appropriate and safe manner.

Emergency surgery

The 2011 document *Emergency Surgery: Standards for Unscheduled Surgical Care* from the Royal College of Surgeons of England provides comprehensive guidance for an emergency surgical service and recognises six facets of emergency surgical provision.[11] The first facet concerns the undertaking of emergency operations at any time, day or night. The second facet relates to the provision of ongoing clinical care for post-operative patients and other in-patients being managed non-operatively, including emergency patients and elective patients who develop complications. The third facet concerns the undertaking of further operations for patients who have recently undergone surgery (i.e. either planned procedures or unplanned 'returns to theatre'). The fourth facet relates to the provision of assessment and advice for patients referred from other areas of the hospital (including the emergency department) and from general practitioners. For regional services, this may include supporting other hospitals in the network. The fifth facet concerns the early, effective and continuous management of acute pain. Finally, the sixth facet relates to communication with patients and their supporters.

The application of these principles is governed by the stipulation that 'it is essential that there is a surgical team available with the required range of competences to deal simultaneously with these demands'.[12] The principles are the College's theoretical and practicable attempt to ensure timeliness, safety and appropriate treatment. The College does not fail to recognise the problematic significance of subspecialisation for the latter, admitting that 'increasing sub-specialisation has led to difficulties in staffing emergency rotas and in defining protocols for transferring patients who do not require emergency intervention to the appropriate sub-specialty team working the next day'.[13] The burden of emergency surgery is also noted in the Royal College of Surgeons of England document, which estimates that 40–50 per cent of the workload of most surgical specialties is emergency care,[14] whilst emergency work has also been estimated to constitute one-quarter of surgical hospital admissions.[15] This could have a significant strain on hospital work if not handled efficiently, and the potential difficulty of providing appropriate treatment as a result of subspecialisation is a meaningful concern.

Similar guidelines for emergency surgery were also provided by ENT-UK, in the document entitled 'Criteria, Standards and Evidence Guidance for Otolaryngology/Head & Neck (ENT) Surgeons' (no longer available online), which acknowledged the potential difficulties in appropriate patient assignation. Specific standards regarding emergency surgery were outlined under 'Good Clinical Care'. These included, importantly: standard two, which stated that the individual should be able to carry out emergency or elective surgical procedures in a timely, safe and competent manner, delegating or referring to colleagues where appropriate, for example, treating children; and standard five, which stated that in his/her absence, the ENT surgeon should ensure safe and effective cover for the assessment, treatment and continuing care of emergency and elective patients for whom they are responsible.

However, delegation to another colleague, whilst an important factor in ensuring appropriate and safe care,

https://doi.org/10.1017/S0022215116007957 Published online by Cambridge University Press

may not always be an option, particularly in an area with an increasing patient intake. In 2013, there were a total of 68 788 emergency admissions to ENT units in England; this represents an increase of 8711 admissions from 10 years previously in 2003, in which 60 077 admissions were reported.[16] Common emergencies within ENT include acute otitis externa, epistaxis, nasal injury and foreign body (ENT),[17] as well as acute upper airway obstruction. It is vital for these presentations to be recognised quickly and the appropriate management to be put in place, as there is the potential for rapid deterioration with life-threatening consequences.

Current situation

With these guidelines in place, how does the specialty currently perform in terms of ensuring that emergencies are dealt with effectively? Limited evidence is available in the literature; however, the urgency with which ENT emergencies need to be managed is illustrated by a 2007 Scottish audit of surgical mortality. The audit found that nearly half of all deaths in ENT departments originated as emergency admissions across all National Health Service hospital services in Scotland.[18,19] It is difficult to distinguish exact causes for this ratio, but the possibilities are worth considering. It may be that the presentations themselves are inherently severe, leading inevitably to poorer outcomes; or that there are problems within the referral system itself; or, indeed, that the rising number of specialists and reduction in generalists, with resultant lack of familiarity with common presentations as previously discussed, is a directly contributing factor. If the latter is acknowledged as a possibility, it must be addressed.

The systems in place to deal with ENT emergencies vary across hospitals,[20] with many employing the use of ENT emergency clinics,[17,21] which enable access to specialist care (for referring general practitioners), accident and emergency departments, and other specialties across hospitals. These clinics are designed to ensure that ENT specialist care is maximally and efficiently used, as appropriate resources and equipment within the clinic treatment room enable rapid diagnosis and management of ENT emergencies,[22] with the additional benefit of minimising unnecessary admissions.[23]

Ensuring timely management

The ENT emergency clinics may be used to ensure timely management of emergencies, by providing a first port of call for referrals and self-presentation by patients. However, there is significant variability in the ENT emergency clinical service across trusts, with no standardisation of design.[24] 'Rapid access' rather than 'open access' clinics have been shown to improve the effectiveness of an ENT emergency clinic, as recently demonstrated by Smyth *et al*.[17] The difficulties of an 'open access' clinic, which patients can attend without referral, include varying numbers of attendees and waiting times, with the potential of over-burdening. It was found that a 'rapid access' clinic, with formal nurse triaging to assess whether it would be more appropriate for the patient to be seen in a consultant out-patient appointment, could efficiently identify more urgent presentations and thus streamline management towards a smaller number of patients with acute ENT presentations.[17]

This finding was corroborated in a 2009 study, which found that a formal referral and appointment-based system, rather than a walk-in service, improved waiting times and rates of appropriate referrals.[24] These steps could be incorporated into guidelines to standardise the workings of the emergency ENT clinic in order to improve the efficiency and timeliness of emergency management.

Ensuring appropriate and safe management

The ENT emergency clinics are typically run by one foundation year two ('FY2') doctor and one core trainee ('CT1/2') doctor. One advantage of this system is that junior members of the ENT team gain exposure to common ENT emergencies and become proficient in their management, which is often relatively straightforward. It also enables more senior registrars to concentrate their time on the ward or in the operating theatre. However, there is the danger that the junior members of the team lack the appropriate levels of knowledge, skill and experience required to run the clinics effectively. Can this style of management therefore be called 'appropriate and safe'?

In 2007, 100 senior house officers (equivalent to the modern grades of foundation year two and core trainee doctors) were asked, in a telephone survey, how comfortable they were in managing a threatening airway.[25] This revealed that many felt their training was inadequate. This situation was exacerbated by the introduction of the European Working Time Directive;[26] the cut in junior doctors' hours has led to the increasing need for trainees to provide emergency cross-cover care for other specialties, with resultant lack of skills or experience posing a problem.[27]

A proposed revision of the system is to dedicate a registrar to support the clinic. This has been shown to increase the number of patients discharged and reduce the number of children requiring the operating theatre, highlighting the benefit of senior input.[22] By minimising unnecessary admissions (which can form a considerable workload),[28] these possibilities for improvement permit more time and attention to be directed towards those patients who need emergency management. This could be an approach by which the specialty might ensure that emergencies are dealt with both safely and appropriately.

Another answer could be to tackle the problem at the grassroots, in the provision of greater ENT education at medical school. Powell *et al*. conducted a survey of UK medical school graduates and found that ENT surgical training constituted on average 8 days of the UK undergraduate medical education.[29] Crucially, the graduates felt significantly less confident with ENT history-

https://doi.org/10.1017/S0022215116007957 Published online by Cambridge University Press

taking, examination and management, in contrast with competencies in other comparable areas of study. These figures indicate the deficiencies in training junior doctors in ENT. Improving the provision of ENT education at an early stage would undoubtedly ameliorate the aforementioned low levels of confidence in dealing with emergencies.

Nevertheless, it is not just junior doctors who commonly encounter ENT emergencies, and, as mentioned, there are dangers concomitant with potentially de-skilled senior subspecialists meeting these situations.[18] This disadvantage must necessarily be weighed against the significant benefits afforded by subspecialisation. A retrospective audit of ENT practice in 2005 investigated the effect of establishing a multidisciplinary tertiary referral clinic for thyroid disease, and found that this subspecialisation resulted in improved surgical outcomes with significant reductions in post-operative complications.[30]

Whilst the advantages of subspecialisation within elective surgery are well established, its effects on emergency work must be specifically considered. A 2010 paper evaluated the effect of subspecialisation in emergency colorectal resection, by directly comparing outcomes between a colorectal surgeon and a general surgeon.[31] The study found marked improvements in resection and primary anastomosis, with an additional statistically significant reduction in post-operative mortality, in the colorectal surgeon group. Robson *et al*. support this conclusion in the auditing of outcomes from perforated and bleeding peptic ulcers, in the separation of emergency surgical services into two subspecialties (colorectal and upper gastrointestinal).[32] Restructuring of the services resulted in lower mortality rates, indicating that subspecialisation is beneficial even in emergency procedures. Thus, whilst subspecialisation can superficially pose problems for emergency surgery, it has been shown that the movement can actually be beneficial in ensuring appropriate and safe management.

It is difficult to extrapolate these results to ENT surgery, as it is relatively uncommon for emergencies to be neatly divisible or assignable to exact specialties. One strategy, however, to minimise the potential adverse effects of subspecialisation on emergency care could be to encourage generalists in the formation of a distinct 'general ENT' subspecialty or indeed an acute ENT care subspecialty, as suggested by Yalamanchili.[33] This approach has been trialled in the USA, mainly in the field of general surgery,[34] with encouraging results shown for acute appendicitis.[35]

Another way in which the specialty can ensure emergencies are handled safely is to audit specific competencies in which senior subspecialists fall short. A prime example is that of paediatric emergency airway management.[18] Blackmore *et al*. evaluated the provision of paediatric services in otolaryngology across 106 units and found that surgeons in less than 30 per cent of these units held a paediatric life support certificate.[36] Indeed, the ENT-UK website currently recommends 'The Paediatric ENT Skills Course for Consultants',[37] which aims to 'refresh knowledge, skills, attitudes and behaviours requisite in the safe management of paediatric airway emergencies' and is 'mapped to "Criteria, Standards and Evidence Guidance for Otolaryngology/Head & Neck (ENT) Surgeons"', the document mentioned above. Extrapolating this finding to advocate the auditing of competencies in common emergency operations that may arise outside a consultant's subspecialty interest, the specialty can highlight areas in which focused training would be beneficial, in order to ensure safe and appropriate emergency management.

Further solutions to improve ENT emergency services

Auditing and clinical governance are two extremely useful tools in medical practice which enable continual refinement and improved outcomes. As mentioned, audits can highlight deficiencies in certain skill areas, but they can also be used to investigate whether resources and equipment are up to date or even fully available, to ensure that emergencies are handled safely. Banga *et al*. investigated the provision of onward airway equipment in a survey of 103 UK ENT departments.[38] They found that only 18 per cent of units had an airway box containing all the equipment the authors deemed necessary to manage an airway emergency effectively. Additionally, the importance of effective training was emphasised here, as the survey also revealed that only 28 per cent of junior doctors had received some training in airway management. As discussed, the training of junior doctors is crucial in the management of ENT emergencies and must be made a priority.

Education and life-long learning are important pillars in the career of a good clinician, and this must be encouraged in the maintenance of emergency skills. This could be achieved, at a trainee level, by ensuring that registrars are well informed of the requirements in the ENT syllabus and by promoting self-accreditation at the consultant level. The latter could even be formalised with a continuous professional development curriculum, with online modules and technical skill workshops. Indeed, simulation-based 'boot camps' addressing airway, bleeding and other emergencies have been shown to be successful in improving confidence in management.[39]

Conclusion

The increase in subspecialisation in the field of ENT surgery can pose certain difficulties in terms of emergency management. However, it must first be recognised that this trend can realistically have a positive role in the management of emergencies themselves. The specialty ensures that management is timely, appropriate and safe by publishing 'best practice'

https://doi.org/10.1017/S0022215116007957 Published online by Cambridge University Press

guidelines, as well as calling for senior subspecialists to maintain essential core emergency skills; auditing should play a key role in ensuring these standards are upheld. Furthermore, emergency ENT clinics form the cornerstone of initial management, and may be improved with better triaging and senior input. Finally, the specialty ultimately has a responsibility to ensure optimal care for its patients; this may be maximised by recognising the need for standardised protocols in all hospitals for common emergencies, to ensure that non-ENT specialists have the confidence to instigate initial steps for the timely management of ENT emergencies. Amid current pressures on the medical workforce, these measures enable the specialty to continue to ensure timely, appropriate and safe management of emergencies.

References

1 Ferguson C. The arguments against fellowship training and early specialization in general surgery. *Arch Surg* 2003;**138**:915–16
2 Weir N. Otorhinolaryngology. *Postgrad Med J* 2000;**76**:65–9
3 Ryan MW, Johnson F. Fellowship training in otolaryngology-head and neck surgery. *Otolaryngol Clin North Am* 2007;**40**: 1311–22,viii–ix
4 Manganaris A, Black M, Balfour A, Hartley C, Jeannon J, Simo R. Sub-specialty training in head and neck surgical oncology in the European Union. *Eur Arch Otorhinolaryngol* 2009;**266**: 1005–10
5 Stitzenberg KB, Sheldon GF. Progressive specialization within general surgery: adding to the complexity of workforce planning. *J Am Coll Surg* 2005;**201**:925–32
6 Bass BL. Early specialization in surgical training: an old concept whose time has come? *Semin Vasc Surg* 2006;**19**:214–17
7 The Intercollegiate Surgical Curriculum: Educating the surgeons of the future. Otolaryngology Surgery. In: https://www.iscp.ac.uk/documents/syllabus_OTO_2013.pdf [3 July 2013]
8 Joint Committee on Surgical Training. Guidelines for the award of a CCT in Otolaryngology. In: http://www.jcst.org/quality-assurance/documents/certification-guidelines/otolaryngology-certification-guidelines [3 July 2014]
9 Oakley RJ, Skilbeck C, Simo R. Work force planning: will the aspirations of the present group of otolaryngology specialist registrars meet the need? *Clin Otolaryngol* 2005;**30**:568–9
10 Georgalas C, Hadjihannas E, Ghufoor K, Pracy P, Papesch M. Operative training in otolaryngology in the United Kingdom: a specialist registrar survey. *J Laryngol Otol* 2005;**119**:356–61
11 Royal College of Surgeons of England. *Emergency Surgery: Standards for Unscheduled Surgical Care*. London: Royal College of Surgeons of England, 2011
12 Royal College of Surgeons of England. *Emergency Surgery: Standards for Unscheduled Surgical Care*. London: Royal College of Surgeons of England, 2011;10
13 Royal College of Surgeons of England. *Emergency Surgery: Standards for Unscheduled Surgical Care*. London: Royal College of Surgeons of England, 2011;5
14 Royal College of Surgeons of England. *Emergency Surgery: Standards for Unscheduled Surgical Care*. London: Royal College of Surgeons of England, 2011;7
15 Royal College of Surgeons of England. Emergency Services. Round Table Meeting, 6th November 2013. In: http://webtest.rcseng.ac.uk/surgeons/emergency-services-provision-round-table [14 May 2014]
16 Health and Social Care Information Centre. Hospital Episode Statistics, Admitted Patient Care, England. In: http://www.hscic.gov.uk/searchcatalogue?q=title%3A%22Hospital+Episode+Statistics%2C+Admitted+patient+care+-+England%22&size=10 [14 May 2014]
17 Smyth C, Moran M, Diver C, Hampton S. Rapid access rather than open access leads to improved effectiveness of an ENT emergency clinic. *BMJ Qual Improv Rep* 2013;2
18 Coulter CA, Powell J, Wilson J. UK ENT emergency service provision: 4 steps to improve your emergency service. *The Otorhinolaryngologist* 2012;**5**:47–9
19 NHS National Services Scotland. Scottish audit of surgical mortality specialty report: data 2007. In: https://nhsnss.org/ [14 May 2014]
20 Bleach N, Mady S, Williamson P. Emergency workload in otolaryngology. *Ann R Coll Surg Engl* 1994;**75**:335–8
21 Fishpool SJ, Stanton E, Chawishly EK, Hicklin LA. Audit of frequent attendees to an ENT emergency clinic. *J Laryngol Otol* 2009;**123**:1242–5
22 Mirza A, McClelland L, Daniel M, Jones N. The ENT emergency clinic: does senior input matter? *J Laryngol Otol* 2013; **127**:15–19
23 Collins C. The standards for emergency surgical services. *J R Soc Med* 2001;**94**:13–15
24 Mylvaganam S, Patodi R, Campbell JB. The ENT emergency clinic: a prospective audit to improve effectiveness of an established service. *J Laryngol Otol* 2009;**123**:229–33
25 Awad Z, Pothier DD. Management of surgical airway emergencies by junior ENT staff: a telephone survey. *J Laryngol Otol* 2007;**121**:57–60
26 Wild JR, Lambert G, Hornby S, Fitzgerald JE. Emergency cross-cover of surgical specialties: consensus recommendations by the Association of Surgeons in Training. *Int J Surg* 2013;**11**: 584–8
27 Davis SJ, McDonald S. Covering ENT out of hours: how confident are senior house officers? *J Laryngol Otol* 2006;**120**: 587–90
28 Campbell J. Inappropriate admissions: thoughts of patients and referring doctors. *J R Soc Med* 2001;**94**:628–31
29 Powell J, Cooles FA, Carrie S, Paleri V. Is undergraduate medical education working for ENT surgery? A survey of UK medical school graduates. *J Laryngol Otol* 2011;**125**:896–905
30 Agada FO, King-Im JU, Atkin SL, England RJ. Does thyroid subspecialization alter practice and outcome? A completed 4-year audit loop. *Clin Otolaryngol* 2005;**30**:48–51
31 Biondo S, Kreisler E, Millan M, Fraccalvieri D, Golda T, Frago R *et al*. Impact of surgical specialization on emergency colorectal surgery outcomes. *Arch Surg* 2010;**145**:79–86
32 Robson AJ, Richards JM, Ohly N, Nixon SJ, Paterson-Brown S. The effect of surgical subspecialization on outcomes in peptic ulcer disease complicated by perforation and bleeding. *World J Surg* 2008;**32**:1456–61
33 Yalamanchili S. Why should disorders of the ear, nose and throat be treated by the same specialty? Can this situation persist? *J Laryngol Otol* 2009;**123**:367–71
34 Ball CG, Hameed SM, Brenneman FD. Acute care surgery: a new strategy for the general surgery patients left behind. *Can J Surg* 2010;**53**:84–5
35 Earley AS, Pryor JP, Kim PK, Hedrick JH, Kurichi JE, Minogue AC *et al*. An acute care surgery model improves outcomes in patients with appendicitis. *Ann Surg* 2006;**244**:498–504
36 Blackmore KJ, Cocks HC, Bosman DA. A national audit of paediatric service provision in otolaryngology in England and Wales. *Int J Pediatr Otorhinolaryngol* 2007;**71**:757–62
37 ENTUK. Paediatric ENT Skills Course for Consultants. In: https://entuk.org/paediatric-ent-skills-course-consultants [20 April 2016]
38 Banga R, Thirlwall A, Corbridge R. How well equipped are ENT wards for airway emergencies? *Ann R Coll Surg Engl* 2006;**88**:157–60
39 Malekzadeh S, Malloy KM, Chu EE, Tompkins J, Battista A, Deutsch ES. ORL emergencies boot camp: using simulation to onboard residents. *Laryngoscope* 2011;**121**:2114–21

Address for correspondence:
Miss Maral J Rouhani,
1 Chesson Road,
London W14 9QR, UK

Fax: +44 (0)161 475 0830
E-mail: maralrouhani@gmail.com

Miss M J Rouhani takes responsibility for the integrity of the content of the paper
Competing interests: None declared