*The Journal of Laryngology & Otology (2012)*, ***126***, *402–406*.
© JLO (1984) Limited, 2012
doi:10.1017/S0022215111003422

**MAIN ARTICLE**

# Determining the content of an educational ENT website using the Delphi technique

J DOSHI[1], J MCDONALD[2]

[1]*ENT Department, Heartlands Hospital, Birmingham, and* [2]*Centre for Medical Education, University of Dundee, Scotland, UK*

## Abstract

The aim of this study was to develop an educational website (www.enttheatre.com) that showed common ENT operations and emergencies, in order to help improve the basic surgical ENT knowledge of medical students and junior doctors. A two-round Delphi survey was conducted to establish the contents of the website. 'Experts' who participated in the Delphi process included otolaryngology consultants and trainees, junior doctors, general practitioners, and medical students. First- and second-round Delphi response rates were 49 per cent (61/125) and 92 per cent (56/61), respectively. Our paper presents a consensus opinion on what basic surgical knowledge a medical student or junior doctor should be familiar with in otolaryngology.

**Key words:** Internet; Education, Medical; Otolaryngology

## Introduction

The Delphi technique is an established method of 'needs analysis' in curriculum planning. It consists of a series of sequential questionnaires or 'rounds', interspersed by controlled feedback that seeks to gain the most reliable consensus of opinion of a group of 'experts'.[1] The Delphi process has been used in other specialties with limited undergraduate or postgraduate training (e.g. dermatology) to identify generic, clinically relevant content.[2]

The aim of this study was to develop an educational website (www.enttheatre.com) that showed common ENT operations and emergencies, in order to help improve the basic surgical ENT knowledge of medical students and junior doctors.

## Method

Ethical approval was obtained from the North Staffordshire Research and Ethics Committee.

### *First-round Delphi process*

An e-mail was sent to the following 'experts' to invite them to complete the first-round questionnaire online (Appendix 1): all 35 ENT specialist registrars in the West Midlands Deanery; all 15 ENT consultants who were departmental-lead educational supervisors in the West Midlands; 30 general practitioners in the North Staffordshire Primary Care Trust; all 15 ENT-themed core-training doctors in the West Midlands Deanery; and 30 final-year medical students from Keele Medical School.

A five-point Likert scale was used for the responses to the first questionnaire (i.e. 'not important', 'fairly unimportant', 'undecided', 'fairly important' or 'very important').

A threshold of 50 per cent consensus was used to determine the contents of the second questionnaire, for those items that had a response of 'very important' or 'fairly important'. Any suggestions made in the first-round responses were also added as new items in the second-round questionnaire. This was sent to all respondents who had replied to round one. A polite reminder e-mail was sent after four weeks if no response had been received.

### *Second-round Delphi process*

Six weeks after the first-round questionnaire had been sent, responses were analysed and the second questionnaire was compiled (Appendix 2). This was e-mailed to all respondents from the first round of the questionnaire. There were three response options for each item: 'definitely yes', 'no – it is not necessary' and 'not sure'.

## Results

The response rate to the round one Delphi questionnaire was 49 per cent (61/125 respondents).

Presented orally at the Midlands Institute of Otology Meeting, 15 January 2010, Shrewsbury, UK, and as a poster at the ENT UK meeting, 10 September 2010, Coventry, UK
Accepted for publication 19 August 2011 First published online 31 January 2012

https://doi.org/10.1017/S0022215111003422 Published online by Cambridge University Press

Respondents comprised 12 medical students, four specialist trainee year one and two doctors, 10 general practitioners, 10 ENT consultants and 25 ENT registrars.

The response rate to round two of the Delphi questionnaire was 92 per cent (56/61 respondents). The non-responders comprised two medical students, two ENT registrars and one ENT consultant.

Each questionnaire in both rounds of the Delphi survey had three main sections: 'Observing an operation', 'Knowing about complications' and 'ENT emergencies'.

*Observing an operation*

The following operations had a 50 per cent consensus of 'very important' or 'important' in the round-one Delphi process: adenoidectomy, tonsillectomy, grommet insertion, septoplasty, nasal polypectomy and thyroid surgery.

Other operations suggested by respondents in round one included pituitary surgery, cochlear implantation, tracheostomy, oesophagoscopy, panendoscopy, lymph node biopsy, facial plastic procedures, mastoid surgery and rhinoplasty.

In round two of the Delphi process, only mastoid surgery was added to the round one selected operations because of agreed consensus within the group.

*Knowing about complications*

Round one results with a 50 per cent consensus of 'important' or 'very important' included adenoidectomy, tonsillectomy, grommet insertion, septoplasty, nasal polypectomy and thyroid surgery. Respondents in round one suggested that mastoid surgery should be included. There were no further additions to this list in the round-two Delphi process.

*ENT emergencies*

Round one results with a 50 per cent consensus of 'important' or 'very important' included management of a foreign body in the ear or nose, epistaxis, tonsillitis, quinsy, and otitis externa.

Other ENT emergencies suggested by respondents included cerebrospinal fluid leakage, tracheostomy, bleeding from the ear, periorbital cellulitis, sudden-onset hearing loss, Bell's palsy, acute otitis media, 'glue ear' and penetrating neck trauma. However, none of these suggested emergencies had an agreed consensus in round two.

Table I summarises the respondents' consensus on which ENT topics medical students and junior doctors should know about, following the two-round Delphi process.

TABLE I
ENT TOPICS STUDENTS AND JUNIOR DOCTORS SHOULD KNOW*

| Topic |
|---|
| Operations & complications |
| – Adenoidectomy |
| – Tonsillectomy |
| – Grommet insertion |
| – Septoplasty |
| – Nasal polypectomy |
| – Thyroid surgery |
| – Mastoid surgery |
| Emergencies |
| – Foreign body in ear |
| – Foreign body in nose |
| – Epistaxis |
| – Tonsillitis |
| – Quinsy |
| – Otitis externa |

*Derived from respondents' consensus.

## Discussion

Despite the prevalence of ENT conditions, undergraduate otolaryngology training has declined over recent years, with some UK medical schools having no formal otolaryngology teaching.[3]

In 2009, Chawdhary *et al.* surveyed 389 final year medical students from a UK medical school.[4] Of the 80 per cent that responded, only 28 per cent felt that they were adequately prepared to handle common, routine ENT complaints.

In 2006, Sharma *et al.* performed a telephone survey of 20 doctors working in different accident and emergency (A&E) departments in the UK.[5] Ninety per cent felt their undergraduate ENT teaching was directly beneficial to working in A&E; however, 75 per cent felt they had not received enough undergraduate ENT teaching. Forty-five per cent had received no postgraduate ENT teaching while working in A&E.

In 2007, Clamp *et al.* performed a postal survey of 500 general practitioners in south-west England.[6] They found that 75 per cent of respondents felt their undergraduate otolaryngology experience was inadequate, and only a quarter of them had received specialty-led tuition in an otolaryngology hospital post.

A similar study was performed in the Trent region of England, which highlighted the limited otolaryngology experience of general practitioners at both undergraduate and postgraduate level.[7] The authors found that 85 per cent of the 220 general practitioners surveyed felt they would benefit from further ENT training. Only one in three general practitioners had received formal postgraduate training in ENT, and approximately half had not been trained in ENT examination at undergraduate level.

In view of the above literature showing limited otolaryngology experience and the perceived need for both undergraduate and postgraduate doctors to improve their knowledge, it was important to determine clinically relevant learning content for our proposed website.

In order to achieve this, educational learning theory was applied. The website content was developed using a combination of 'top down' and 'bottom up' approaches. These approaches have previously been used in curriculum development.[8]

https://doi.org/10.1017/S0022215111003422 Published online by Cambridge University Press

The traditional top down approach is employed by an organisational body of experts. These experts decide the content of their educational programme based upon their expertise and experience; it reflects important topics that they believe a student should know about.

A bottom up educational approach considers the learner's ideas and expectations when developing the content of an educational programme. This approach can sometimes identify areas that are not considered when employing a more traditional curriculum development approach.

The content of our proposed website was developed using a Delphi questionnaire distributed to ENT consultants, ENT registrars and general practitioners as well as to medical students and junior doctors. In this way, we hoped to employ both the top down and the bottom up educational approaches.

- **Undergraduate and postgraduate otolaryngology training is limited**
- **Medical students and junior doctors believe they need to improve their basic otolaryngology knowledge**
- **The Delphi technique was used to obtain a consensus opinion on clinically relevant content for an ENT education website**
- **This identified the basic ENT knowledge that respondents believed medical students and junior doctors should have**

The Delphi process we employed was purposive, in that the respondents surveyed reflected those directly involved in delivering ENT training, as well as the intended recipients of ENT training. The two-round Delphi process used identified content thought to be important by both experienced clinicians and the target audience (i.e. medical students and junior doctors).

The questionnaire response rates in this study were consistent with those reported by similar studies using online questionnaires.[9]

Our findings represent a consensus opinion on the basic ENT surgical knowledge with which medical students and junior doctors should be familiar.

## References


1 Linstone H, Turoff M. *The Delphi Method: Techniques and Applications*. Reading, Massachusetts: Addison-Wesley, 1975
2 Clayton R, Perera R, Burge S. Defining the dermatological content of the undergraduate medical curriculum: a modified Delphi study. *Br J Dermatol* 2006;**155**:137–44
3 Mace AD, Narula AA. Survey of current undergraduate otolaryngology training in the United Kingdom. *J Laryngol Otol* 2004; **118**:217–20
4 Chawdhary G, Ho EC, Minhas S. Undergraduate ENT education: what students want. *Clin Otolaryngol* 2009;**34**:584–5
5 Sharma A, Machen K, Clarke B, Howard D. Is undergraduate otorhinolaryngology teaching relevant to junior doctors working in accident and emergency departments? *J Laryngol Otol* 2006;**120**:949–51
6 Clamp PJ, Gunasekaran S, Pothier DD, Saunders MW. ENT in general practice: training, experience and referral rates. *J Laryngol Otol* 2007;**121**:580–3
7 Veitch D, Lewis M, Gibbin K. General practitioner training in ENT in the Trent Region. *J R Soc Med* 1992;**85**:156–8
8 Bull S, Mattick K. What biomedical science should be included in undergraduate medical courses and how is this decided? *Med Teach* 2010;**32**:360–7
9 Sax LJ, Gilmartin SK, Bryant AN. Assessing response rates and nonresponse bias in web and paper surveys. *Res Higher Edu* 2003;**44**:409–32


## Appendix 1. Round-one Delphi questionnaire

*Observing an operation*

(1) How important do you feel it is that a medical student or foundation doctor should have observed at least one of the following elective ENT operations at some point during their undergraduate or postgraduate education, regardless of what their final career specialty may be? (*For each operation, respondents were asked to select either 'Not important', 'Fairly unimportant', 'Undecided', 'Fairly important' or 'Very important'.*)

– Adenoidectomy
– Tonsillectomy
– Grommet insertion
– Myringoplasty
– Ossiculoplasty
– Stapedectomy
– Septoplasty
– Nasal polypectomy
– Inferior turbinate reduction
– Parotid gland removal
– Submandibular gland removal
– Thyroid surgery
– Laryngectomy
– Neck dissection

(2) Please list any other elective ENT operations, other than those listed above, that you feel it is important for a medical student or foundation doctor to have observed:

*Knowing about complications*

(3) How important do you feel it is that a medical student or foundation doctor should be aware of potential complications for each of the following operations? (*For each operation, respondents were asked to select either 'Not important', 'Fairly unimportant', 'Undecided', 'Fairly important' or 'Very important'.*)

– Adenoidectomy
– Tonsillectomy
– Grommet insertion
– Myringoplasty
– Ossiculoplasty
– Stapedectomy
– Septoplasty
– Nasal polypectomy

https://doi.org/10.1017/S0022215111003422 Published online by Cambridge University Press

– Inferior turbinate reduction
– Parotid gland removal
– Submandibular gland removal
– Thyroid surgery
– Laryngectomy
– Neck dissection

*ENT emergencies*

(4) How important do you think it is that a medical student or foundation doctor should be aware of the general principles of management of the following ENT emergencies? (*For each operation, respondents were asked to select either 'Not important', 'Fairly unimportant', 'Undecided', 'Fairly important' or 'Very important'.*)

– Foreign body in the ear
– Foreign body in the nose
– Epistaxis
– Food bolus with or without bone
– Tonsillitis
– Quinsy
– Stridor
– Otitis externa

(5) Please list any other ENT emergencies, other than those listed above, that you feel it is important for a medical student or foundation doctor to know about:

*Your position*

(6) What is your position?

– ENT consultant
– ENT registrar or equivalent
– Foundation doctor or ST1 or ST2
– General practitioner
– Medical student
– Other (please specify)

## Appendix 2. Round-two Delphi questionnaire

*Observing an operation*

(1) Do you feel that a medical student or foundation doctor should have observed at least one of the following ENT operations at some point during their undergraduate or postgraduate education, regardless of what their final career specialty may be? (*For each operation, respondents were asked to select either 'Definitely yes', 'No, it is not necessary' or 'Not sure'.*)

– Adenoidectomy
– Tonsillectomy
– Grommet insertion
– Nasal polypectomy
– Thyroid surgery
– Stapedectomy
– Pituitary surgery
– Cochlear implant
– Tracheostomy
– Panendoscopy or oesophagoscopy
– Microlaryngoscopy
– Lymph node biopsy
– Facial plastic procedure
– Mastoid operation
– Rhinoplasty

*Knowing about complications*

(2) Do you feel that a medical student or foundation doctor should be aware of the potential complications of each of the following operations, regardless of their career intentions? (*For each operation, respondents were asked to select either 'Definitely yes', 'No, it is not necessary' or 'Not sure'.*)

– Adenoidectomy
– Tonsillectomy
– Grommet insertion
– Septoplasty
– Nasal polypectomy
– Parotid surgery
– Submandibular gland removal
– Thyroid surgery
– Laryngectomy
– Neck dissection

*ENT emergencies*

(3) Do you feel that a medical student or foundation doctor should be aware of the general principles of management of the following ENT emergencies, regardless of their career intentions? (*For each operation, respondents were asked to select either 'Definitely yes', 'No, it is not necessary' or 'Not sure'.*)

– Foreign body in the ear
– Foreign body in the nose
– Epistaxis
– Food bolus (with or without bone)
– Tonsillitis
– Quinsy
– Stridor
– Otitis externa
– Cerebrospinal fluid leakage from nose or ear
– Periorbital cellulitis
– Sudden-onset sensorineural hearing loss
– Bell's palsy
– Penetrating neck trauma

*Your position*

(4) What is your position?

– ENT consultant
– ENT registrar or equivalent
– Foundation year doctor or ST1 or ST2

https://doi.org/10.1017/S0022215111003422 Published online by Cambridge University Press

– General practitioner
– Medical student
– Other (please specify)

Address for correspondence:
Mr Jayesh Doshi,
ENT Department,
Heartlands Hospital,
Bordesley Green East,
Bordesley Green,
Birmingham B9 5SS, UK

Fax: +44 (0)121 424 1353
E-mail: jayeshdoshi@hotmail.com

Mr J Doshi takes responsibility for the integrity of the content of the paper
Competing interests: None declared

https://doi.org/10.1017/S0022215111003422 Published online by Cambridge University Press