

Information Mastery, Effective Health Care, Evidence-Based Practice and the Otolaryngologist

*Deepa Bhargava,¹ Yousef Al-Saidi,¹ Kamlesh Bhargava,² Rashid Al-Abri¹

السيطرة على المعلومات، الرعاية الصحية الفعالة، الممارسة المبنيّة على الدليل وجراح الأنف والأذن والحنجرة

ديبا بهارجافا، يوسف السعيدى، كامليش بهارجافا، راشد العبري

المخلص: الهدف: دراسة سلوك الحصول على المعلومات لدى جراحى الأنف والأذن والحنجرة في عُمان، ورغبتهم للتعليم واكتساب مهارات الممارسة المبنيّة على الدليل. **الطريقة:** أجريت هذه الدراسة المقطعية عبر توزيع استبيان على 63 من الجراحين العاملين بجراحة الأنف والحنجرة في عُمان (تشمل مختلف درجات التخصص من المقيم إلى الاستشاري) أثناء حضورهم مؤتمرا وطنيا لجراحة الأنف والأذن والحنجرة في يناير 2010. **النتائج:** تم استلام تسعة وأربعين استبيانا كاملا، وكان لدى 57% من المشاركين خبرة تزيد عن 10 سنوات، وكان 60% منهم يعملون في مستشفيات الرعاية الثالثية. ظهر بأن 38.8% منهم على اتفاق تام و 36.7% على اتفاق جزئي بأن الممارسة المبنيّة على الدليل من شأنها تحسين نوعية الرعاية، وبالتالي تقديم رعاية صحية فعالة للمرضى. كان لدى أكثر من 46.9% (1-5) أسئلة في الأسبوع، بينما كان لدى 18.4% منهم (11) سؤالاً أو أكثر في الأسبوع أثناء أداء الرعاية الطبية. أبدى 69.4% من الجراحين استعدادا لاكتساب مهارات السيطرة على المعلومات. كانت هناك علاقة ارتباط إحصائية بين عدد سنوات الخبرة، وعدد الأسئلة، والرغبة في اكتساب مهارات السيطرة على المعلومات. **الخلاصة:** تبين ازدياد أهمية مصادر الشبكة الدولية أثناء الممارسة السريرية اليومية. معظم الجراحين العاملين في جراحة الأنف والحنجرة في عُمان لا يعتقدون أنه من الضروري التمكن من اكتساب مهارات المعلومات فحسب، بل إن الرعاية الصحية الفعالة تعتمد على هذه المهارات وعلى الممارسة المبنيّة على الدليل. وأظهر غالبية المشاركين الرغبة لاكتساب هذه المهارات. هذه المهارات ستكون حيوية في المستقبل لمساعدة الجراحين بهذا الاختصاص على تقديم حلول فعالة في الرعاية الصحية.

مفتاح الكلمات: إدارة المعلومات، رعاية صحية فعالة، عُمان، طب مبني على الدليل، ممارسة قائمة على الدليل، الشبكة الدولية.

ABSTRACT: Objectives: The objectives of this study were to study the information-seeking behaviour of otolaryngologists in Oman, and their willingness to learn and acquire evidence-based practice (EBP) skills. **Methods:** A cross-sectional survey was carried out by distribution of a questionnaire to 63 otolaryngologists (ranging from residents to consultants) employed in Oman who attended a national otolaryngology meeting in January 2010. **Results:** Forty-nine completed questionnaires were received; 57% of the respondents had more than 10 years' experience, and 60% were from tertiary care; 38.8% "totally agreed", and 36.7% "partially agreed" that EBP would improve the quality of care and thus provide effective health care to patients. More than 46.9% had 1-5 questions per week, 18.4% had 11 or more questions per week at the point-of-care; 69.4% were willing to acquire information mastery skills. There was a statistical correlation between the number of years of experience, the number of questions, and willingness to acquire information mastery skills. **Conclusion:** In day-to-day clinical practice, web-based resources are of increasing significance. Most otolaryngologists in Oman not only believed that it is essential to acquire information mastery skills, but also that effective health care depends on such skills and on EBP. Most were willing to acquire these skills. In the future, these skills will be vital in helping otolaryngologists deliver effective health care solutions.

Keywords: Information Management; Effective health care; Oman; Evidence-based medicine; Evidence-based practice; Internet; Point-of-care.

ADVANCES IN KNOWLEDGE

1. In medical literature there are very few studies on information mastery in general and none in the field of otolaryngology.
2. The results of this study revealed that most otolaryngologists are aware of the relevance of information mastery, effective health care and

evidence-based practice (EBP) in day-to-day practice.

3. *The knowledge that 69% would like to acquire skills for practising EBP would help in determining the educational needs of this cohort.*
4. *The study revealed a direct statistical correlation between otolaryngologists with less than 5 years clinical experience and a reluctance to acquire EBP skills; this cohort also had fewer questions arising from their day-to-day practice of otolaryngology. This needs to be addressed if effective health care is to be provided to patients in Oman by future otolaryngologists.*

APPLICATIONS TO PATIENT CARE

1. *This study showed that otolaryngologists, faced by information overload, lack of time, assessments of quality of care and patients informed by internet research, can improve their knowledge, the quality of their care, and protect themselves from litigation by acquiring information mastery skills.*
2. *Information mastery skills can help in solving day-to-day clinical dilemmas and differences of opinion, and meet currently unmet information needs at the point of patient care.*

THE GOAL OF MEDICINE HAS ALWAYS been to provide care to patients in a way that will help them live to their fullest capacity with the minimum amount of pain and discomfort. Not only has the identification of ways to provide better medical care improved, but also this information is coming to us at an accelerated pace. New treatments are constantly being found, and older approaches are continually becoming obsolete. Physicians and surgeons are being asked to retool their whole approach to information. Now they have to be information managers, continually learning and updating their approach to medical care as medical knowledge continues to evolve. Information mastery has been defined as “applied science that allows clinicians to harness resources in the information age”. It is a set of skills that will help medical professional be as up-to-date as their patients by obtaining the most valid and relevant information in the least amount of time.¹ Information mastery was defined as: Usefulness of an information = $\frac{\text{Relevance} \times \text{Validity}}{\text{Work}}$

The usefulness of any information is directly proportional to its relevance and its validity; however, if too much work is required to obtain that information its usefulness diminishes.¹ Information mastery is an outgrowth of the movement towards evidence-based medicine (EBM), which first started in 1981.²

The constant increase in the body of medical knowledge is a source of frustration and anxiety amongst health professionals in general and medical students in particular. Every day new diagnostic tests and treatments are being introduced. Patients are also becoming better informed through the media and the Internet stimulating a new passion for life-long learning in academia, professional

environments, work place and at home.³ There is a need for evidence-based knowledge at the point-of-care as most physicians and surgeons have unmet information needs, besides day-to-day clinical dilemmas and differences in opinions. Medical research continues to expand at an exponential rate. The task of clinicians striving to practice EBM medicine seems to be getting bigger with doctors increasingly having to rely on Internet-based resources.⁴

Today otolaryngologists are not expected to know everything, but should be able to access and assess information when required, to be information masters rather than encyclopedias of medical information. The aim of this study is therefore to examine the information-seeking behaviour and attitudes of otolaryngologists in Oman and the impact of information technology on their day-to-day practice.

Methods

This cross-sectional study was carried out in January 2010 at the annual meeting of otolaryngologists in Oman. All sixty-three otolaryngologists present were requested to participate in the study by completing a questionnaire which was distributed to them.

The questionnaire was created and designed by two co-authors of this article (DB and KB). It comprised 4 sections and 15 statements/questions. Questions covered demographics (including number of years of experience); information mastery needs; availability of information mastery tools, and attitudes to information mastery and EBM.

The questionnaire was subjected to internal and external validation. Internal validation included

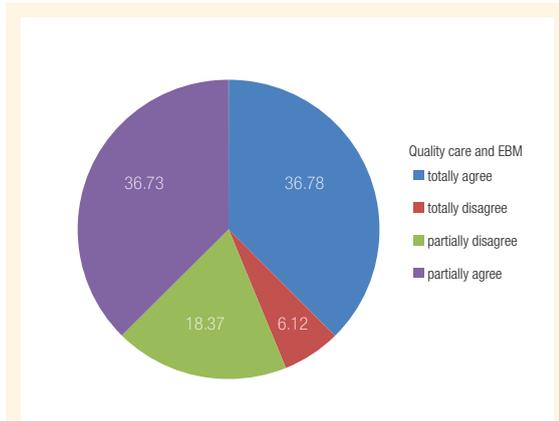


Figure 1: Percentage response to question on belief that quality of care depends on evidence-based practice correlated to number of years experience.

piloting the questionnaire with four experts who analysed its linguistic, face, and content validity. Following internal validation, the questionnaire was edited and arranged in a logical, brief, simple, clear, concise, unambiguous and user-friendly format; unnecessary and repetitive questions were detected and deleted. The effectiveness of the questionnaire was determined by the survey itself and its reliability was found to be satisfactory.

The data were analysed using the Statistical Package for the Social Sciences (SPSS, Chicago, IL, USA, Version 16) and correlations were studied. The significant differences in the percentages between the groups were studied using the chi-square test. A *P* value (two tailed) of less than 0.05 was considered statistically significant.

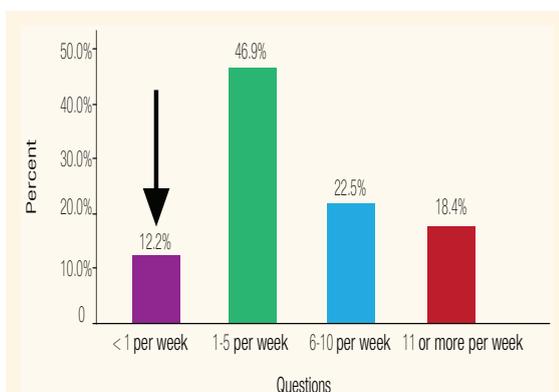


Figure 2: Number of questions arising in daily practice of otolaryngologists in Oman.

Results

A total of 49 completed questionnaires were received. The demographic data is shown in Table 1. A total of 57% of respondents had more than 10 years experience, while 60% were from tertiary care. A total of 38.8% “totally agreed” and 36.7% “partially agreed” that EBP would improve the quality of care [Figure 1].

“Questions” were defined as questions which required the otolaryngologists to undertake further investigations during the care of a specific patient. More than 46.9% had 1–5 questions per week at the point-of-care; 18.4% had 11 or more questions per week. A significant finding was that 12% had less than one question per week; all these responders had less than 5 years of experience [Figure 2].

On the topic of information mastery skills, 69.4% of respondents were willing to acquire them. There was a statistical correlation between the number of years of experience, the number of questions, and willingness to acquire information mastery skills. These results reveal that more experienced otolaryngologists had higher information needs, and vice versa [Figure 3].

Discussion

This study examined the impact of information technology, with a EBP focus, on the way otolaryngologists in Oman sought to answer clinical queries. Most of the otolaryngologists (75.5%) agreed partially or totally that the quality of health care depended on evidence at point-of-care and that EBP would improve the quality of care. It would have been interesting to know the thoughts of the respondents regarding factors other than EBP that influenced the quality of patient care, but that was outside the scope of the present study.

There was a positive correlation between the number of years of experience and the number of questions which occurred each week. This finding is in contradiction to the expectation that lesser-experienced surgeons would have more questions. Some of the possible explanations for the junior otolaryngologists’ small number of weekly questions and low interest in developing information mastery skills could be lack of time, other priorities, a preoccupation with developing surgical skills and the need to study for examinations. This attitude

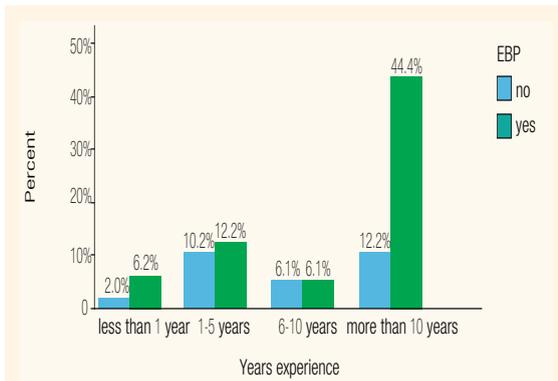


Figure 3: Relationship between number of years of experience and willingness to acquire information mastery skills for evidence-based practice (EBP).

needs to be addressed in the interest of the quality of their education and patient care with the ultimate goal of enhancing their skills in both knowledge-acquisition and surgery.

In a study carried out in 1994, Covell *et al.* found that physicians had two questions for every three patients seen, and that 40% of clinical questions raised during in-patient consultations were on medical facts.⁶ These findings appear similar to those found in the present study where more than 46.9% of respondents had 1-5 questions per week.

Translating knowledge into practice can close the gap between good and best care. No matter what source we choose, we would like to spend the least amount of time and energy to find the best information.⁷ The problem with using clinical experience alone is its validity although certainly using one’s own experience to meet information needs involves minimal work. A study conducted

in the USA showed that 49% of causes of family physician errors, as perceived by physicians, were due to a lack of knowledge about the medical aspects of the case.⁸ In another study, it was also found that family physicians do not pursue answers to 64% of their clinical questions, but when answers are pursued, they can be found for 80% questions.⁸ We have a very similar experience in our team as invariably as we have been able to retrieve answers to most of the clinical questions asked.

The imperative of training junior doctors to utilise information technology resources competently was found to be a strongly held belief among responders in a somewhat similar study of paediatricians;⁹ however, the provision of access to online resources may not result in the application of EBM to patient care. In a survey of UK paediatricians carried out while they were on call, Riodan *et al.* found that very few of them used EBM resources to make on call decisions although they had access them.¹⁰ They concluded that a better utilisation of resources might be to train doctors to be ‘practitioners of EBM’ and so to know where to find preprocessed evidence and how to apply it—rather than be able to perform complex critical appraisal through training in clinical epidemiology. In a review of online evidence-based resources, Krupski *et al.* commented that the use of electronic databases of pre-appraised evidence can greatly expedite the search for high quality evidence. This can then be integrated with the patient’s individual circumstances to provide translational research at the point-of-care.¹¹

The study had some limitations: the small number of otolaryngologists in Oman, and a limited representation of them at the meeting where the data was gathered. Another limitation was that the survey respondents ranged from junior to senior otolaryngologists.

Conclusion

In day-to-day clinical practice at the point-of-care, Internet resources are of increasing significance. In this study, most otolaryngologists believed that quality of care depended on EBP and information mastery skills. The number of clinical queries at the point-of-care was directly correlated to the number of years of clinical practice experience of the respondents. Most of the

Table 1: Demographic data on the survey respondents

Demographic Category	Percentage of respondents
GRADE	
Consultants	37
Specialists	22
Postgraduate trainees	41
AGE GROUP	
>40 Years	57
< 40 Years	43
GENDER	
Female	47
Male	53

otolaryngologists surveyed were willing to acquire information mastery skills. The reluctance of junior otolaryngologists to acquire these skills in addition to surgical skills needs to be addressed. To address the ever changing world of medical knowledge and to keep up with the advances in medicine, we propose that otolaryngologists should incorporate into their practice the skills of information mastery in order to keep updated, and provide the best possible care thus improving the quality of care and the patients' health-related quality of life.

CONFLICT OF INTEREST

The authors reported no conflict of interest.

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