

Could OtoRecall transform ENT learning?

BY ENIOLA SALAU

Training continues to change and evolve in the face of changing working practices and, of course, the impact of unprecedented events like the pandemic. The basics remain important for safe practice as training and work continue to evolve; innovative tools can help with this. Such a potential tool is OtoRecall, as introduced here.

The development of trainee surgeons takes place under a number of extrinsic and intrinsic pressures. Some of these are longstanding contextual challenges, such as time, staffing and financial pressures, whilst others are more recent, with increasing demands on health services worldwide and the ongoing impact of COVID-19 on training experiences. In this complex and challenging landscape, utilising evidence-based practices in surgical education has never been more necessary.

OtoRecall is a US-based app whose goal is “to provide otolaryngology residents and [...] medical students a centralised high-quality open access resource” [1]. Unlike other available apps, OtoRecall is specifically designed “to optimise learning and retention for trainees in the field of otolaryngology, Head and Neck surgery and overlapping specialities” [1]. This application represents a compelling option for trainee surgeons in otolaryngology, grounded in well-established empirical evidence from cognitive psychology about learning. This article proposes that OtoRecall is a valuable tool to support the efficient development of knowledge and expertise for surgical practitioners in the field of otolaryngology.

Contextual challenges for surgical education

Surgical trainees’ education is extensively self-directed; for example, in the UK’s Intercollegiate Surgical Curriculum Programme (ISCP) otolaryngology curriculum, self-directed learning is one of the three core educational approaches. The ISCP states that “the curriculum is trainee-led”, and that “trainees are expected to undertake personal study” in addition to formal and clinical-based training [2]. However, such personal study efforts often take the form of passive approaches such as reading and reflecting on published literature, studying textbooks, or writing and highlighting notes. Learners in all settings commonly report using such approaches; however, evidence suggests these are less effective learning techniques [3].

Like similar recall-based apps (such as Anki or Quizlet), OtoRecall is a learning tool built on well-established findings from cognitive science on how to best catalyse and consolidate new learning. The two key concepts behind this approach are ‘retrieval practice’ and ‘spaced repetition’.

In learning any new concept, our aim is to embed and consolidate new knowledge in long-term memory, so that it might be recalled and reused in the future. In reality, the phenomenon of forgetting is inevitable – as time elapses there is an unavoidable decline in our ability to remember recently learned information. However, the highly-replicated testing effect suggests that intentional study practices can arrest and slow this decline. By effortfully reviewing newly learned information, learners’ ability to recall said information is strengthened, the rate of forgetting is slowed, and the time taken

to re-learn information is decreased [4]. This approach is termed ‘retrieval practice’.

‘Spaced repetition’ is an approach that can be combined with retrieval practice for even greater consolidative benefits. By leaving a gap in time between successive retrieval attempts, a certain degree of forgetting can be intentionally induced, making subsequent recall attempts more effortful. The increase in challenge of a retrieval episode appears to increase the strengthening effect of the practice. So, by combining effortful recall with carefully planned intervals, knowledge can be effectively and efficiently galvanised against the decaying effects of time [4].

In medical education, the best documented examples of spaced retrieval practice are electronic flashcard platforms such as Anki, a free web-app with a paid mobile app. One US study has suggested that Anki use is correlated with USMLE Step 1 performance [5]. However, a key limitation of Anki’s program is that flashcards must be manually created by users, which can be time consuming, and can require trainees to engage with costly resources, such as textbooks, that are not publicly available.

“The two key concepts behind this approach are ‘retrieval practice’ and ‘spaced repetition’”

Addressing these challenges through an easy-to-use app

The OtoRecall app aims to address this shortcoming. Built on the principles of spaced retrieval practice, it uses a responsive algorithm that determines how challenging a user finds different topics and ensures challenging topics are reviewed more frequently. It is packaged with pre-designed flashcards, specifically designed for ENT surgical training and education. The cards were created alongside in-service ENT trainees and fellows working in a range of subspecialties, with an aim to focus on the most high-leverage concepts in otolaryngology. The subspecialties covered include facial plastic and reconstructive surgery, facial trauma, head and neck, laryngology, otology and neurotology, paediatric otolaryngology, and rhinology and sinus surgery.

In practice, one danger of such an approach is a reluctance to engage in this form of active learning as a result of the discomfort associated with being frequently presented with new information. This can cause learners to be tempted to resort to traditional methods of learning, passively reading around the topic being questioned – an experience this author can empathise with on past experiences. For spaced repetition and retrieval practice to be an effective learning method, individuals must trust the program and let the app organise the learning experience in the most efficient manner. Setting aside time daily to practise – as you would with

any new skill – leads to gradual gains in confidence, and the breath of content covered. For OtoRecall, the recommendation is that each card should be tackled within 20 seconds in order to drive fluency and ease of recall over time.

A powerful learning aid

OtoRecall features 4500 cards covering a wide range of subspecialties, and is relevant for anyone from medical students to those on post-CCT fellowships. It represents a highly useful tool in the arsenal of any trainee, with handy features such as a library function, keyword search, and the ability to focus on specific subspecialties. The accessibility allows easy frequent use – during commutes, in between surgical cases, or during breaks. The app is sponsored by Cochlear Ltd. and Stryker Corporation, and is available as a free mobile app on both iOS and Android devices.

Self-directed learning is essential to well-rounded surgical training, and being able to maximise the value of this through easily accessible and efficient well-designed resources that reflect recent advances in medical education is key. Wider awareness and use of this application is a valuable resource to the surgical community, a powerful scaffold for surgical development in ENT, and a learning approach that integrates effectively with clinical-based learning.

References

1. Headmirror Inc. (n.d.). OtoRecall Spaced Repetition Learning for Otolaryngology. www.headmirror.com/otorecall
2. Intercollegiate Surgical Curriculum Programme (ISCP) (2021). Otolaryngology Curriculum: The Intercollegiate Surgical Curriculum Programme. www.iscp.ac.uk/media/1106/otolaryngology-curriculum-aug-2021-approved-oct-20.pdf
3. Dunlosky J, Rawson KA, Marsh, EJ, et al. Improving Students' Learning With Effective Learning Techniques: Promising Directions From Cognitive and Educational Psychology. *Psychological Science in the Public Interest* 2013;**14**(1):4-58.
4. Roediger H, Karpicke JD. The Power of Testing Memory Basic Research and Implications for Educational Practice. *Perspectives on Psychological Science* 2006;**1**(3):181-210.
5. Lu M, Farhat JH, Beck Dallaghan GL. Enhanced Learning and Retention of Medical Knowledge Using the Mobile Flash card Application Anki. *Medical Science Educator* 2021;**31**(6):1975-81. Links last accessed August 2022.

AUTHOR



Eniola Salau, MBBS, MRCS (ENT), PGCert MedEd,

Core Surgical Trainee CST1, Luton and Dunstable NHS University Trust, UK.

SECTION EDITORS



Lizanne Steenkamp,

Lecturer in Audiology; BAA Board Director for Education, Accreditation and Registration; RCCP Education and Professional Standards officer, Speech and Hearing Sciences, Queen Margaret University, Edinburgh, UK.

lsteenkamp@qmu.ac.uk



Rujuta Roplekar Bance, FRCS-ENT,

Senior Head & Neck Fellow, UCLH, UK.

r.r.ropkekar@doctors.org.uk