

# Mobile apps for ENT emergencies

BY SIMON COLE

On-call apps have been covered in this publication before, with reference apps taking centre stage [1]. This article will focus on apps with specific functions which can be of use in frequently arising emergency scenarios. However, for reference apps I would recommend BMJ Best Practice and Up-To-Date. Both have clear explanations and are evidence based including hyperlinked references, with the added benefit of automatically recording CPD points.

## Ishihara Color Blindness Test

**FREE**

**Android – equivalent iOS alternatives available**

**Size 6.49MB**

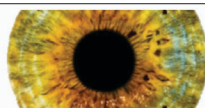
This app will be important for those needing to quickly assess for red-green colour blindness such as in cases of orbital infection, concern about traumatic or post-endoscopic sinus surgery haematoma or neoplasia. Where there is doubt about preoperative colour vision, this app could aid in checking this.

Although for young pre-numerate children using objects or toys on the ward may be preferable, satisfactory examples may be hard to find in a hurry. The app offers a short (24-plate) or full (38-plate) test and

documents the result in the patients records for comparison with subsequent results. This may be especially valuable to those working without on-site ophthalmology cover.

The app opens to a brief introduction explaining the basics of colour blindness. Once a test is selected, the user can show the phone to the patient and either the patient or clinician can input answers. On completion of the test a breakdown of normal, protanopia (red colour blindness), deuteranopia (green colour blindness) and total colour blindness, results are given. Answers to individual plates are given with an explanation of what is seen in different defects. Clinical judgement is required, and a full eye assessment should always be undertaken by an experienced clinician at the earliest opportunity.

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### Introduction.

The test consists of 24 (short version) or 38 (full version) images consisting of circles of different colors, and is designed to detect the two most common types of color blindness: Protanopia, which is total or partial red-blindness, and Deuteranopia, the total or partial deficiency to perceive green.

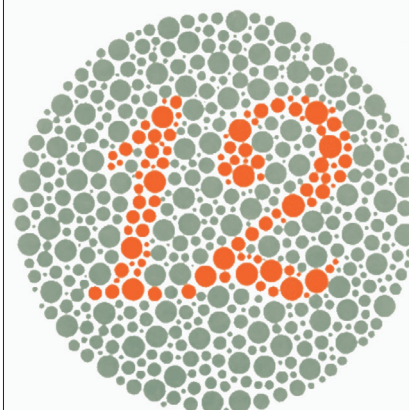
The most common color blindness is a offset between red and green caused by a deficiency to perceive one of them or both. In varying degrees, we all have that shifted perception. When it is mild, protanopia is called protanomaly and deuteranopia is called deuteranomaly.

This test is designed to diagnose only the most extreme cases (the nopias), but may give you clues to subtle abnormalities (pay attention if you see some images more intense than

**24 PLATES**

**FULL TEST**

Below each Ishihara plate you will see buttons with options. Choose the one that best suits what you see after you have observed the image. Some may be ambiguous, so choose instinctively without thinking too much.



**2**

**12**

**Nothing**

Ishihara Color Blindness Test app.

App	Cost	Size (MB)	Available
Ishihara Color Blindness Test	Free	6.49	Android, equivalent iOS alternatives available
Mobile airway card	Free	50.72	Android and iOS

### Mobile Airway Card

**FREE**

**Android and iOS**

**Size 50.72MB**

This app from Cincinnati Children's Pediatric Otolaryngology is especially useful for any ENT specialist working in a paediatric centre, but could come in handy for anyone working where the accident & emergency department receives children. Its simplicity is its strength. On opening the app, the user is presented with the menu of options. Its features include diagrams of the Cotton-Myer grading scale [2]. There are tracheostomy tube, balloon, and T tube sizing charts in which the user selects parameters such as tube type e.g. Bivona neonate and tube size to receive the key measurements such as outer diameter and length.

It saves clinicians having to internet search sizing information or keep this as screenshots on their phone or printed in a wallet or work bag. Most usefully, it helps calculate percentage of airway obstruction using accepted ETT size and age which can

then be clearly recorded in operation notes and discharge letters. A table of age, tube size and percentage obstruction is also included.

There is also an example of a normal airway to show patients/parents. It would be useful to include some common variations in this such as laryngomalacia to help these discussions.

### Conclusion

Two apps which may be useful to any ENT clinician, working in general or sub-specialist fields, are discussed. Mobile devices are becoming an ever-more integrated part of life with a broad range related to surgery [3]. Ready access to emergency tools and information can be a worthwhile addition to surgical instruments.

### References

1. Lee J. On-call ENT apps. *ENT & Audiology News* 2022;**31**(1):62-3.
2. Myer CM 3rd, O'Connor DM, Cotton RT. Proposed grading system for subglottic stenosis based on endotracheal tube sizes. *Ann Otol Rhinol Laryngol* 1994;**103**(4 Pt 1):319-23.
3. Mobasher M, Johnston M, Syed U, et al. The uses of smartphones and tablet devices in surgery: A systematic review of the literature. *Surgery* 2015;**158**(5):1352-71.

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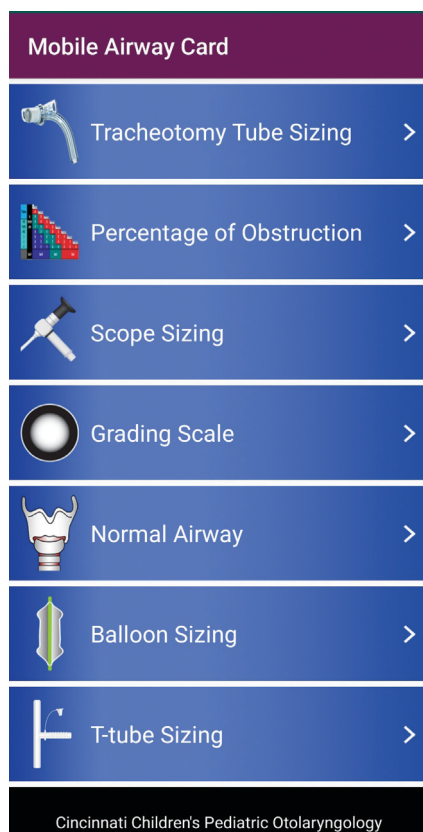


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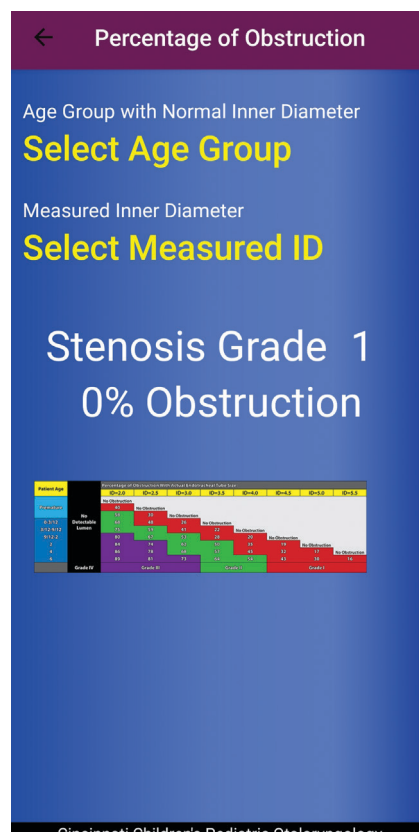
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**Disclaimer:** This is a review of apps that may be utilised by on-call ENT clinicians, but this does not represent an endorsement and these apps should not be considered medical devices. Like any source of information, apps can become out of date or superseded. Responsibility remains on the user to crosscheck information where relevant.



Mobile Airway Card app.



Cincinnati Children's Pediatric Otolaryngology