

How to be ‘appy’ on call: a brief guide to mobile phone applications for the on-call ophthalmologist

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One of the unexpected outcomes of the COVID-19 pandemic has been an increased reliance and integration of computer technology within hospital medicine. The need for stricter infection control policies during and after lockdown has seen a boom in technology utilisation. From ‘Zoom’ clinical teaching, to Microsoft Teams’ multidisciplinary meetings, and online e-consultations, previously unheard-of computer software and applications (apps) have revolutionised the working lives of doctors.

Ophthalmology, though not on the front line, has also experienced a dramatic change in technological innovation and excellence [1,2]. On the one hand, software and apps have doubtlessly streamlined some clinical services, for example, the ‘Attend Anywhere’ platform [3]. In addition, the ability to continue trainee teaching and simulation has preserved clinical and surgical skill during long periods of inactivity throughout the first and second waves of COVID-19 [4]. What is perhaps less recognised is the utility of software and apps to the on-call ophthalmologist.

Often undertaken by the most junior member of the team, on calls can be a daunting time. Depending on geographical location, trainees from as early as ST1 and ST2 can find themselves alone, at night, in a hospital, tasked with correctly recognising and diagnosing acute ocular pathology, excluding ‘red-flags’ and not missing sight-threatening complications and sequelae. Slit-lamps may be broken or unavailable, patients may be bedridden, aggressive and / or uncooperative, and support from off-sight seniors can be variable. This article is written with all junior colleagues in mind, and with the hope that this advice may assist and serve you well.

We understand that intuitive and well-designed apps can facilitate better patient care and outcomes. However, it can be difficult and time-consuming to identify the most useful applications. Yang et al.



highlighted the “smart phone apps every ophthalmologist should know about”, and in this article can be found multiple suggestions of applications for learning and developing ophthalmology skill sets [5]. Yet missing from these is a practical guide to apps that can help improve management decisions whilst on call.

When exchanging time-critical information, it is easy to utilise familiar and well-known applications. ‘WhatsApp’ is one of the most popular global messaging apps, with over two billion users globally [6]. Despite being encrypted, WhatsApp cannot maintain patient confidentiality and is unsuitable for sending sensitive patient data. This is because WhatsApp’s back-up function automatically downloads conversations onto the user’s device, where they are not encrypted. Its automatic back-up feature, essential for restoring messages, then uploads these unencrypted files onto a remote cloud, often in the United States. As the data is not stored in the UK, it is not subject to the same data regulations and can be read by whichever company owns the server (Facebook, Apple, or Google etc.) [7].

WhatsApp’s popularity and ubiquitous use, often, mistakenly, leaves doctors with the impression that WhatsApp is ‘secure’. As such, it is now the regular

focus of General Medical Council (GMC) medical school case scenarios that aim to highlight the importance of judicious social media use. Key to this is maintaining confidentiality. GMC resources provide a clear learning point: if a clinician uses an online chat they must “make sure that patients can’t be identified” [8]. This reiterates their ‘Good Medical Practice’ guidelines, where the GMC advise that:

“Many doctors use professional social media sites that are not accessible to the public. Such sites can be useful places to find advice about current practice in specific circumstances. However, you must still be careful not to share identifiable information about patients” [9].

Despite this, the most recent data from the GMC shows that 28 clinicians were investigated for improper social media use between January 2015 and July 2017 [10]. As recently as March 2021, 10 clinicians were brought before the GMC for malpractice and were subsequently referred to the Medical Practitioners Tribunal Service (MPTS) for comments made on WhatsApp [11]. Although the GMC noted that the messages and their content shared on WhatsApp didn’t directly relate to clinical practice, these clinicians now face being struck off because of improper WhatsApp use [12].

Critically, it is not always made clear by software and application providers if clinical governance and patient confidentiality requirements are being adequately met. Trusts may not have policies which specifically outline 'approved' or 'non-approved' technologies. This becomes especially challenging when communicating with colleagues out-of-hours or across multiple sites and / or trusts when on-call.

The dangers of indiscriminate app use, however, can be avoided. There are many useful and secure applications which can enhance clinical practice and improve on-call decisions. 'Pando' is one such application – it is a simple, well laid-out messaging app specifically designed for clinicians. Pando has options for team, one-to-one messaging and forums for common problems, discussion panels and expert advice requests. It is incredibly versatile and can safely be used to send patient details and photos, secure in the knowledge that it complies with current NHS General Data Protection Regulation (GDPR) and Data Security and Protection guidelines. There is also the ability to assign photos to specific patients – perfect for on-call shifts where rapidly sharing anterior chamber and corneal images can be vital for guiding management decisions. Due to its intuitive design, it is widely used, and a must-have for on-call shifts.

Pando is endorsed by many NHS trusts, but it is worth checking before downloading the app. Any messages containing patient information are medico-legally part of the patient's record, and as such should be accessible (for example, by a patient using a Freedom of Information request). Without Trust endorsement of Pando, any shared patient data is not automatically connected to the patient's record – and so is unavailable for both the patient and medicolegal purposes. This is a pitfall for all messaging apps that can easily be avoided by checking that the app is officially adopted by the Trust before sharing any sensitive information.

'Micoguide' is also well known and widely used. It provides hospital-specific guidelines, and its popularity is justified. As you can download up-to-date guidelines, the on-call doctor is not at the mercy of patchy NHS Wi-Fi and you can rapidly make evidence-based treatment decisions. Micoguide also has a dedicated ophthalmology section, and is well loved for its treatment option algorithms which are convenient and easy to use when working those tiring or busy on-call shifts. The only downside is the requirement to log on with a personal social network account – not easy or suitable for those staying off the

grid. The current Moorfields 'Emergency Guidelines' and 'Antimicrobial Adult Guide' can be downloaded by any user working at any hospital, and these serve as a useful benchmark to follow, especially when specific local policies may not exist, be difficult to access, or consultant-to-consultant opinion varies.

As with Microguide, 'MDCalc' comes very highly rated and can be personalised to be ophthalmology specific. It is perfect for an on-call shift, providing a Hydroxychloroquine (Plaquenil) Dosing Calculator, Ishihara plates and a modified Snellen test on your phone. This provides the ability to check key clinical markers from anywhere in the hospital, without the need for specialist equipment. There is an abundance of other apps which provide these same functions, but by combining it all in one intuitive and well-designed app, MDCalc saves scarce phone storage space – going some way to maintain your phone's work-life balance. The value of being able to record a visual acuity in a bedridden patient when a Snellen or LogMar chart is nowhere in sight cannot be underestimated whilst on-call. Plus, establishing optic nerve function in emergencies such as orbital cellulitis is diagnostically important and can prove critical in management decisions, for example: do you need an overnight MRI-Head, or can it wait till the morning?

'Ullman Indirect' is a lesser known but hugely useful tool, and was highlighted by Yang as an app "every ophthalmologist should know about" [5]. With a simple clip-on magnifying glass, it produces high-quality retinal images and videos - so key pathologies can be identified at the bedside, without a slit-lamp. These can be rapidly shared with off-site colleagues. It does come at a cost - £4.49 on the Apple app store, and with limited availability – and although there are Android-compatible versions available online, it is only officially available on the Apple store. However, it is the only app on the market providing such high-quality retinal imaging. Ullman Indirect can, for example, establish the absence of a retinal tear or detachment in a high-risk patient, and serve as key medicolegal documentation when patients progress to develop tears or detachments after your on-call review.

This is a snapshot of the most useful applications available, designed to save time and facilitate high-quality patient care, effective communication, and accurate documentation. As technology continues to develop more applications will doubtlessly emerge – which, through considered and judicious use, increase confidence and enhance our on-call clinical practice.

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[All links last accessed June 2022].

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