

View from the front line: Digital cameras and imaging

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Digital imaging and medicine

Even if you are not into photography, it is hard not to miss the sweeping revolution of digital photography. Sales of traditional film and film cameras have slowed down as they have been overtaken by digital cameras. For proof of this, visit most tourist spots and look at most of the cameras people are using – invariably they are digital. In fact, they are becoming even more common as many modern mobile phones are now equipped with digital cameras that can take pretty impressive pictures. So with this technology easily and relatively cheaply available, it will undoubtedly impact on the practice of medicine.

Think about the specialties of ophthalmology, radiology, dermatology, primary care, accident and emergency, to name just a few that would benefit from instant access digital imaging. But there are drawbacks as well as advantages.

Once purchased, and once all the extras are added on – such as memory cards, camera cases, spare batteries, *etc.* and access to a computer (although, not 100% necessary) – then the running costs of a digital camera are relatively small. However, security is essential, otherwise they are prone to be 'borrowed' by patients or staff.

A point-and-shoot camera sounds a potentially ideal solution but there is still an art in taking a decent picture with both technical and artistic ability needed. Just because it is digital does not mean that you don't need any photographic skills. For more information read Nayler¹ about the technical skills of clinical photography. Also, for a front-line clinician, if they are in the middle of a busy clinic, to take time out and obtain a photograph requires enthusiasm and commitment, especially when there is a crowd of patients waiting to be seen. However, the immediacy of digital photography does allow the image to be viewed rapidly after the shot is taken.

Thought should be given to what you are going to do with the digital pictures. Are they going to be printed out and stored with the paper records

or held digitally? Are they going to be used on a Web site or in a PowerPoint presentation? With the huge rise of multimedia Web sites, digital cameras are a boon to feed these sites with useful content. Blogs, clinical case presentations, or simple illustrations of a clinical point can all be amplified by the presence of a useful and relevant digital picture. There are many good educational Web sites for dermatology, e.g. DermAtlas <<http://dermatlas.med.jhmi.edu/derm/>>, and without doubt, these resources have hugely benefited from the output of digital cameras.

There are two main ways by which dermatologists can access images of skin lesions, either by someone taking a digital picture and forwarding it to the dermatologist (possibly via email), or by live interactive video conferencing technology (e.g. using a Webcam). As always, there are disadvantages due to the lack of direct physical proximity between the dermatologist and the patient.²

Superficially, taking clinical pictures with a digital camera offers a number of potential advantages. A simple picture can be a better clinical record of an injury, skin lesion, *etc.* than a long, textual description that is time consuming and which may reflect the possible bias of the person recording it. However, there are issues of obtaining appropriate patient consent and having policies around the taking of digital pictures. For a good example of a consent form and a policy statement check out the University of Alberta Emergency Medicine Web site <www.emergency.ualberta.ca/uofa/31-photography/31-00.main.html>. A good caveat in this consent form is that if written consent cannot be obtained immediately, there is still the possibility of obtaining consent within the next 30 days. If consent is not obtained by within 30 days, the image is destroyed.

These are very valid points and, of course, there is a temptation to take plenty of clinical digital pictures and put them on an educational Web site.

However, all health professionals should be careful to remove (using image manipulating software) all identifying features, so that no patient could be recognised which would be a breach of patient confidentiality. For a number of reasons, it is important to have a policy about the use of digital pictures. This does not seem to be common. In a paper which examined the presence of policies in such situations in emergency departments in the UK,³ a large variation in practice was found. This paper went on to make recommendations which are well worth reading, and also discusses an issue which has concerned me in the past: the alteration of images by using image manipulation software such as Photoshop and Paint Shop Pro. There is a good discussion on the medicolegal aspects of digital manipulation in this paper. It has concerned me that enthusiastic and well-meaning clinical colleagues wanting to improve the quality of a clinical digital photograph may alter the very clinical signs they want to preserve. This could confuse anyone trying to interpret the images.

There is no doubt that having easy access to digital cameras or other modern digital imaging devices is going to have a massive clinical impact on education and the recording of clinical scenarios. Just as digital cameras have become mass-market tools, so they will become clinical tools. However, we must be vigilant in this process, and produce modern, robust and well-disseminated policies and make sure that front line clinical staff are well aware of them.

References

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