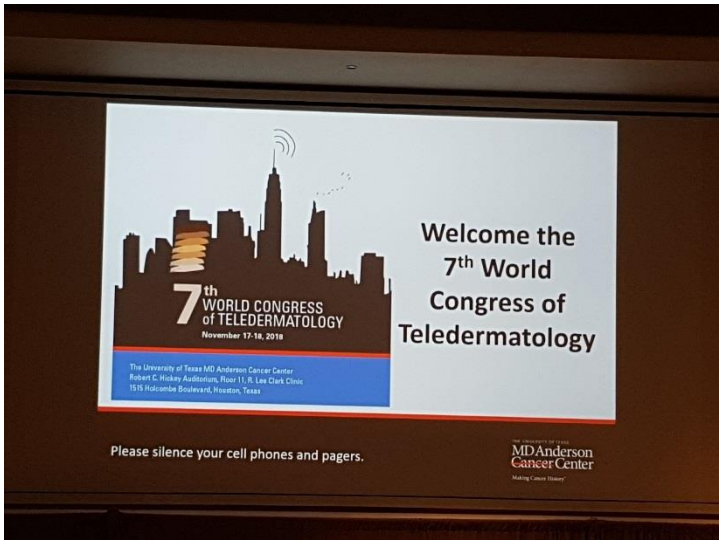
Teledermatology Fellowship 2018

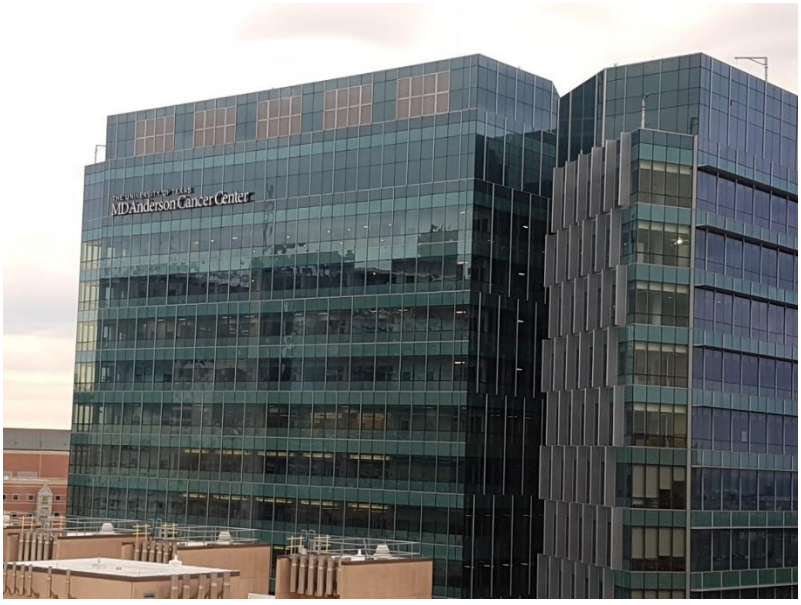
7th World Congress of Teledermatology
MD Anderson Cancer Center, Houston, Texas, USA
Saturday 17th November 2018 & Sunday 18th November 2018

I am extremely grateful to the BAD, the Teledermatology Subcomittee and Dr Saul Halpern (Medway Foundation Trust) who kindly facilitated a Travel Fellowship towards my attendance at this Congress.



The World Congress of Teledermatology is a 2-yearly meeting bringing together like-minded dermatologists, with enthusiasts in the fields of telemedicine, technology and entrepreneurs.

The last 6 congresses have been held in Europe, so this year's meeting was an exciting change. There was a very rich line up of > 150 delegates, with more than 35 wide-ranging talks. Below I've highlighted a few that caught my attention, angled towards the sphere of near-future advances in Teledermatology.



Just one of the buildings of the vast University of Texas, MD Anderson Cancer Center.

Artificial intelligence is a prominent front-runner in current teledermatology circles. A vast array of small and big named companies (Google for example) are investing time & money in, what they see as, the future of lesion analysis. Convoluted Neural Networks (CNNs) is a computer system involving forward self-learning, drastically reducing the need for hand-engineered traditional algorithms. The current focus is on lesion analysis after photography for melanoma detection. These have been in slow development over some time and are now coming in to prominence. Just like humans, the more knowledge and experience (images & data) we feed them, the better they get. Unfortunately, it is a scarcity of shared data and images worldwide that is limiting any one CNN software becoming sharp enough to be mainstream. Rough calculations show that approximately 150, 000 images and patient datasets of melanomas (or any other lesion) need to be collated for one AI system to learn to a satisfactory level matching (even exceeding) that of a Dermatologist. That is where the crunch comes in – put simply, there is not enough shared images and data out there for anyone to effectively make AI that that 'giant leap'. The International Skin Imaging Collaboration (https://isic-archive.com/) is seeking to address just that and their website is worth a look.

You may imagine wearing a virtual reality (VR) headset to be more associated with computer gamers than sitting in your office answering teledermatology queries, but that's exactly what one team in Massachusettes have been doing. They have developed special digital cameras and techniques to capture skin lesions in 3 dimensions before being passed on to the teledermatologist. Their demonstrations and images were noteworthy, however many of us found sufficient information in well taken 2D images to confine the bulky headset to the desk drawer for the majority of referrals. I think the clinical utility of this gadget is still a work in progress.

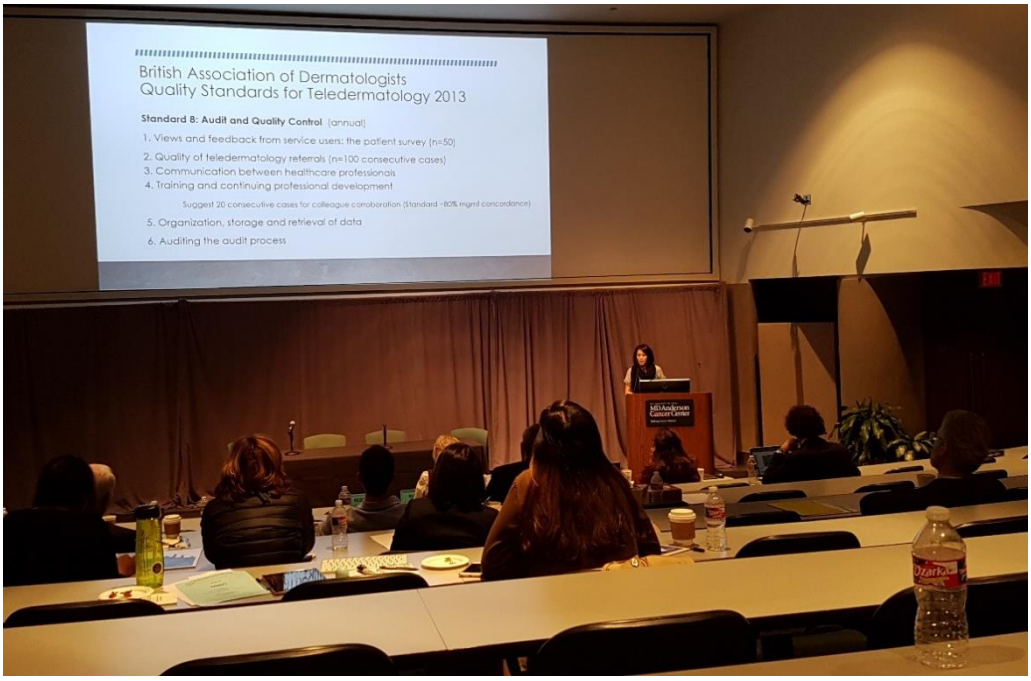
Reflective confocal microscopy (RCM) is not yet readily available in the UK but seems to be more so in the US. However, they too are struggling with declining numbers of dermatopathologists commensurate to their needs. And in the effort to reduce the unnecessary biopsy rates, RCM popularity has increased, mismatched by those who can effectively read the images. Teledermatology has found a very suitable home here as various centres across the US take advantage of rapidly evolving technology. In the last year, a dermatopathologist can now be in their office reviewing RCM images from many centres performed by competent technicians (store & forward format) or even review live images and control the settings of the scanning probe remotely to gauge the correct depth, and give a reply in real-time. Portability has also taken a big step forward, with all this being possible with a laptop and RCM handheld device connected via a USB port.

Back to the usual workings of a UK Dermatology and Dermatopathology department; not enough staff, vast amounts of clinical work. Dr Rajendra Singh's (New York, USA) enlightening lecture showed us a US angle of managing this issue. Teledermatopathology is now a mainstream modality used there, with slides being digitised in cellular pathology departments and sent in breath-taking clear definition to centrally based pathologists who can easily view, manipulate, & label the images. If like me, you take half and hour just to get the microscope focussed, then let me tell you, this 'Pathpresenter' Teledermatopathology demonstration was a breath of fresh air! Future developments in the US include fully incorporating digital cellular pathology into the post-graduate exam board in the next 2 years and do away with glass slides completely. They are also building on their philanthropic work in the Middle and Far East, offering Teledermatopathology opinions to departments needing a second opinion.

One of my favourite, final memorable talks was delivered by Dr Laszlo Igali (Consultant Dermatopathologist, Norwich, UK). He showed us images of a high-definition tablet, with a crisp, clear & bright skin pathology slide on the screen in one hand; a pina colada in the other and a back drop of a sunny beach. This certainly brought a new definition to work-life balance. This is technology is available today, but importantly, advances are being made in the field of digital pathology sample

analysis. With augmented reality, such software allows for digital manipulation of the slide. Essentially this means viewing the skin sample in microscopic 3D, viewing it from different angles & removing desired components and layers to home in on the region of interest. Think Minority Report meets Cellular Pathology and you'll have an accurate picture – hand waving gestures all included in the name of work.

I hope that this has given you a little flavour of what's to come; some transient fads, others here to stay.



The BAD Quality Standards for Teledermatology received special attention and commendation from many speakers and delegates attending.

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