Transferring imaging from primary to secondary care (part 1)

Transferring clinical imaging from high street optometrists to secondary care is an increasingly requested option, especially in the context of the COVID-19 pandemic. A wide variety of solutions exist to allow this, each with their own merits and shortcomings. For the next two issues this column will describe the choices available and explore the contexts where certain solutions are suitable. The list of solutions is intended to be comprehensive, but please do let us know if you are aware of others.

Connect optometrists via VPN

Low cost software and hardware options exist to add high street optometry practices onto a hospital network. These come under the term virtual private network (VPN). Imaging devices connected in this manner can be then switched, as needed, between the local network or the hospital network. The advantage of this solution is that the devices (e.g. OCT scanners and field machines) behave as if they are in the hospital. Scans and photos appear instantly on the hospital ophthalmic PACS (e.g. Zeiss Forum, Heyex 2 or Topcon Harmony). The solution is potentially quick to set-up and low cost, compared to other options, but does require significant buy-in from hospital IT departments. In the method described, clinical imaging would be sent from the high street optometrists to the hospital. The information flow would just be one way, although it would be possible to widen the VPN approach to share full hospital software to the optometrists. Access of this nature would provide high-street optometrists with the option to add imaging to the hospital ophthalmic Picture Archiving and Communication System (PACS), but also view historic imaging. If an ophthalmic electronic patient record (EPR) was also shared via this approach (e.g. OpenEyes), true shared care would also become possible. Secondary care providers typically issue honorary contracts to optometrists working in this way. If a wider deployment were considered, with access to an ophthalmic EPR, training in the hospital systems would clearly be needed. An example of this type of deployment is the way the OpenEyes EPR is being deployed nationally in Wales, to both hospitals and optometry practices.

Ophthalmic EPR access without a VPN

With advances in internet security, it is increasingly possible for hospital electronic patient record software to be accessible from the internet, avoiding the need for VPN solutions. If an institution makes their ophthalmic EPR available on the internet (with enhanced security) it can be accessed by specific optometry practices directly. This approach allows for direct transfer of clinical imaging into the EPR, at both the primary and secondary care sides. Internet hosted deployments of ophthalmic EPRs are currently the exception, rather than the rule. The one notable example is the recent deployment of OpenEyes to Scotland, which is hosted on the internet, giving primary and secondary care direct access. Although this approach gives an extremely high level of connectivity between high street optometry and secondary care, it may be too much sharing for some organisations.

Opera and the CUES scheme

Although Opera is a software solution that provides connectivity between optometry practices and secondary care, it is currently inseparably tied to the NHS-England CUES enhanced referral scheme, and therefore both must be discussed together. CUES (COVID-19 Urgent Eyecare Service) has allowed optometrists involved in the scheme to see and treat patients with acute eye conditions and refer them into hospital practice if needed. The intention behind the scheme has been to minimise trips for patients into hospitals in the context of COVID-19. Those using the scheme have been able to use the Opera web platform to send referrals and clinical imaging to secondary care. The solution has an integration with the NHS e-Referral System (eRS), which is required for referrals in England. Users in primary care need to manually export the needed imaging files from their cameras and scanners and then add them to the Opera website. Opera can import and view most imaging types, including OCT image stacks. Options exist in secondary care for viewing the images provided with the referrals. By default, a link is provided with the referral which displays the clinical images in a light-weight, web based, PACS viewer. Clinicians in secondary care can export images from the PACS viewer for storage in local hospital systems. The team behind Opera are also able to send the images via other routes into hospital networks, to more easily facilitate importing the imaging into hospital systems. Spine access is a strong feature of Opera, allowing users in primary care to correctly identify patients from national NHS data. Opera is an impressive solution, both for its integration with the NHS England e-Referral System and the clinical imaging transfer and viewing features. The main limitation is that the solution can only be used to send referrals, rather than support two-way shared care with bi-directional messaging. The restricted use of the solution to only refer acute (rather than routine) cases is also a limitation. It does seem likely that the bodies behind the solution will try to tackle routine referrals in the future. At the time of writing the 'C' in CUES is being considered for renaming from 'COVID', to 'Community'.

Big Picture

Unlike most of the other solutions discussed here, Big Picture have created a collaborative sharing platform that spans all medical specialties, not just eye care. I have been impressed with what is promised from Big Picture's next version, expected in four to six months. The current solution is already in place, in a limited deployment, at Moorfields Eye Hospital, where it facilitates shared care between optometrists and the hospital. The platform is easily adapted to a wide range of workflows by a very user-friendly drag and drop interface. The data entry fields require little typing, instead simple questions are asked, that can vary, based on answers to previous questions. This makes for a very pleasing and easy to use system. The data captured by the platform can be easily analysed, graphed, and clearly presented in dashboards. Both manual and automated capture from imaging devices is supported. Unlike some of the superficial referral platforms discussed

in this article, Big Picture provides a much deeper and highly configurable system that can be tasked to handle many different and parallel running pathways and workflows. The system is equipped with the needed components to allow deep integrations with other systems, like EPRs, the NHS Spine and the e-Referral System. The company feels they are not trying to make an electronic patient record, but instead are building a rich and powerful collaboration platform, capable of linking primary care clinicians to secondary care clinicians. Big Picture would also be well suited to connect secondary to tertiary care settings. Of all the solutions described, this one has the greatest ambition, the widest scope and a high degree of control and configurability. To caveat the praise above, I have not used the platform personally, but have spent some time in conversation with the CEO and founder. I received clear answers to my technical questions, so I am hopeful this product will deliver on the features described. Big Picture are not currently (July 2020) taking on new customers, but they state that they intend to be able to make their latest version available for use by the end of 2020.

Oculo

Oculo is a web-based platform that is widely used in Australia for handling referrals from ophthalmic primary to secondary care. The software uses its own referral management system, rather than interfacing with the NHS e-Referral System. More recently, in the context of COVID-19, Oculo has gained video consultation features, a little like Attend Anywhere. Images can be attached to Oculo, but for more fully featured imaging requirements (like DICOM imaging and OCT stacks), Oculo partners with Topcon's Harmony platform. Oculo is strongly associated with Specsavers in Australia, where it is widely used to handle referrals from optometrists to secondary care. Oculo itself was developed in collaboration with Specsavers.

File sharing solutions (e.g. Citrix Sharefile)

Many hospital trusts will already have cloud-based file sharing solutions in place. The basic features provide something much like Dropbox. Enrolled hospital users are typically able to give access to select folders to users external to the organisation. As an example, my Trust uses a file sharing solution called Citrix Sharefile. I have created a shared folder for a high street optometrist and given them access to upload files to that folder. Once files are uploaded, specific members of my team receive email notifications. They can then collect the files and import them to our ophthalmic PACS. As this type of solution may already be in place, there may be no costs to implement. The main disadvantage is that manual intervention is required to import each transferred file into a viewing platform. For low volumes, this is very manageable, but would quickly become very labour intensive for busy services. This topic will continue in the next issue, and cover the community sharing features of Zeiss FORUM, Topcon Harmony and Heidelberg HEYEX 2.

SECTION EDITOR

David Haider,
Consultant Ophthalmologist and Chief Clinical Information Officer, Bolton Foundation Trust, UK.

E: david@drhaider.co.uk
Twitter: @drdavidhaider

For full transparency, I assist in the design and strategic direction of the OpenEyes Electronic Patient Record. This is a non-remunerated role