

Transferring imaging from primary to secondary care (part 2)

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. In the second of a two-part series, this column will describe more of 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.

Evolutio

It could be argued that the single focus of this article on imaging transfer is too simplistic. Many other related aspects, such as how the primary care staff get remunerated, or how new referrals are triaged are not considered. Evolutio is a UK ophthalmic care provider that offers efficient image capture from a wide range of high street device types and integrates them efficiently into its patient management platform. The company generally provides the imaging transfer solutions as part of a complete package of care including referral, triage, delivery of care and even some types of surgery. They are not a provider of cataract surgery or intravitreal injections, but position themselves to tackle referral refinement, stable glaucoma and minor procedures. Their services are typically provided based on a Clinical Commissioning Group service tender, rather than being contracted by individual hospitals.

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Device manufacturer solutions

Zeiss, Heidelberg and Topcon are the most common manufacturers of OCT scanners in UK hospital environments. Consequently, the ophthalmic Picture Archiving Communications Systems (PACS) solutions from these companies tend to be the most frequently used in secondary care. Each company has a modern PACS solution (that needs to be purchased separately from their devices). The solutions are Zeiss Forum, Heidelberg Heyex 2 and Topcon Harmony. Each platform has some features to facilitate image import from other sites. Each platform has relative strengths over the others. For instance, Zeiss Forum has the best field analytics, whereas Topcon Harmony currently offer the superior cloud features that can facilitate shared care.

Zeiss Forum – MultiSite Gateway

The MultiSite Gateway feature is designed to allow imaging to be exported from one Forum instance and automatically imported into a Forum instance at another site. This works well even when the identification numbers are of different types, as the solution matches based on name, gender and date of birth. The MultiSite Gateway does require the organisations to be on the same network (typically via a VPN) to work automatically. It is still possible to use the feature without a VPN, by using a third party file sharing solution (like the Citrix ShareFile solution mentioned in the previous article). An additional cloud platform is in the works by the company, which will remove the need for a VPN.

Although the Gateway feature works best when DICOM files are exported from one Forum instance, and imported into another, the feature can also be used to accept DICOM files from other manufacturer systems. As an example, optometry practices with Topcon OCT scanners could export the DICOM files of the scans and send them to the hospital (via VPN or file sharing). The Forum MultiSite Gateway could then be used to import them. Forum supports basic viewing of OCT image stacks from other systems.

Heidelberg HEYEX 2 - Cloud Connect

The HEYEX 2 platform also has a new feature that provides an automated way to send imaging from one HEYEX 2 deployment to another, via a secure internet data store (the cloud bit). This could be from one hospital to another or an optometrist to a hospital. Those hospitals using HEYEX 2 are now able to purchase this add-on feature. Installing HEYEX 2 in community optometry practices is required, which may limit adoption of this solution by Trusts.

Topcon Harmony

Topcon are the last of these three device manufacturers to release a powerful ophthalmic DICOM PACS solution. ImageNet 6 is their camera and OCT capture software, but Harmony is their new web based PACS. The platform can be fully cloud deployed, making access by high-street optometrists straightforward. The platform also can work with Harmony deployments from other Trusts, to facilitate shared imaging between secondary and tertiary care. Like the other modern ophthalmic PACS solutions, Harmony can view OCT slices from other manufacturer devices (in basic form). In optometry practices, the solution can be deployed in such a way that cameras and scanners can be monitored for exported images, reducing the need to manually export and import imaging from devices to the software. Workflow features and imaging protocols are available to standardise collection and referral pathways. The Harmony platform is not yet in place at any sites in the UK, though has been deployed widely elsewhere in Europe. Harmony could become a strong competitor in the UK market, as the solution offers a range of powerful features, support for devices from major manufacturers and rich cloud support.

Image Exchange Portal (IEP)

For completeness, it is worth including IEP. This is a product by Sectra and is in common use in radiology. It is the route that most UK hospitals use to transfer CT and MRI imaging from a PACS in one hospital to another. An existing PACS needs to be in place at both the sending and receiving ends, which would

limit this use in optometry practices, where PACS solutions are not typically present.

A note of caution

Typically, optometry systems require users to manually register patients with the demographic details they provide. In hospital environments demographic details are pulled from national systems (e.g. the NHS Spine). Also, optometry practices generally do not have access to the patient NHS numbers, whereas hospitals do.

Worse still, hospitals tend to mostly use unique hospital numbers, rather than NHS numbers (and optometrists almost never have access to these). This discordance in identification numbers can cause problems when trying to merge imaging data automatically into hospital systems. It is not unusual for some of the details in the optometry demographics (especially full names) to be wrong, and cause mismatches. Even with those solutions that allow high street optometrists to pull demographic details and NHS numbers from the Spine (like Opera), there may still be issues due to ophthalmic PACS systems using hospital numbers rather than NHS numbers. In a nutshell this means that it is difficult to get imaging from optometry merged

automatically into the correct record in the hospital ophthalmic PACS systems. To a lesser or greater degree, some non-trivial (and on-going) merging will be required to keep the records aligned.

Collecting and merging imaging data from varied devices in the same hospital is already challenging, and a high bar for many eye units. Adding external imaging only complicates matters further.

Hospital to hospital transfers

Transferring imaging between secondary care providers (or secondary to tertiary) should be easier, as they all tend to be part of the NHS network (HSCN, or Health and Social Care Network). The involvement of IT departments from two separate organisations can make projects of this nature overly ambitious. If buy-in can be assumed, all manner of options are available, from simple shared folders to direct integrations between ophthalmic PACS solutions. The increasing provision of cloud sharing solutions by the main device manufacturers will likely avoid these issues in the future. Once the Big Picture platform is available more widely, it could be particularly useful to handle both referrals and imaging between eye units.

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