Philips transforms image-guided therapy with global launch of Azurion Platform

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Azurion: next generation image guided therapy platform . Credit: PRNewsFoto/Royal Philips

(Medical Xpress)—Image-guided therapy is one of the more rapidly expanding fronts of modern medicine. While many immense hardware challenges in this field have already been overcome, several thorny software issues continue to be cumbersome. For example, poor interoperability and system integration, steep learning curves, and non-intuitive user experiences are all endemic in the business. A powerful new platform from Philips called Azurion is set transform the way medical procedures are done in the interventional lab.

The once clear distinction between surgical procedures done in the OR, and interventional procedures done in a hybrid cath lab (the place where the big instruments are) is rapidly becoming blurred. This convergence is due in part to the great demand for real time imaging by a variety of modalities before, during, and after many surgeries. Azurion's platform brings together several of their prior innovations under one roof to handle a wide variety of routine and complex procedures. These earlier tools were frequently specific for certain organs or systems and had tended to have clearly descriptive names like VesselNavigator, EmboGuide, Echonavigator, and AneurysmFlow.

The sheer number of instruments that can now be brought to bear to shed light on or otherwise affect patient condition is staggering. In addition to the more familiar xray, ultrasonic, radio frequency, thermal or MRI methods, there are now more exotic proton, neutron, and even electron beams one can aim at various maladies. Increasingly, these myriad spies, interrogators, and persuaders must be brought to bear from the inside, via various catheters and probes. To wield these technologies, doctors and technicians alike need more than just a desk and computer screen to sit at in the lab or surgical suite—they need a full-fledged cockpit.

Furthermore, docs and patients both share two counterpoised imperatives: they need on demand access to patient database records, but require that access to be security and with some expectation of privacy. Additionally, once images are retrieved, rendered, and processed, there is often a need to merge patient data and device into the same assembly. For example, in engineering design, a CAD jockey's job is greatly streamlined by having the ability to download and incorporate full parametric 3-D models of parts directly from the manufacturer into their model.

In this case, the CAD designer benefits from not having to flesh out each

screw and thread they might specify, and the manufacturer benefits because the engineer is then apt to turn the automatically generated Bill of Materials into a direct part order. In much this same general way, doctors can pop in a model from a manufacturer of a new heart valve or stent into their pre-operative patient mock up to get a better idea of exactly how everything fits together.

It is here, in this cross platform interoperability that the Azurion platform may have greatest potential. To illustrate better, consider a patient making a simple request for their own scan data. If they are *lucky*, they might get a disk or drive that contains their images stored in something know as DICOM file format. This format was first created by radiologists and medical physicists to meet demands for dose-planning in radiation therapy. In addition to encoding some patient details and maybe some scheme for compression, the DICOM specification includes its own network communications protocols and even designates 'ports'. For example, many IT types familiar with HTTP might know that port 80 or 8080 are common defaults. Similarly, port 104 can be specified for DICOM, or perhaps something else for more secure protocols.

Next, the inquisitive patient would have to look for a DICOM viewer which they can install in order to decode their images. We should mention here that over half of the people and patients in the US have an entry in 'EPIC', the majority software cult now in widespread use for electronic health records. Although Azurion 'integrates seamlessly' with EPIC (essentially this means EPIC information and data is accessible on Azurion's monitors), and it can talk to a DICOM cloud so to speak, patients can't actually access any of these things. If one is looking to invest in a full-fledged package for their own use, I would hazard a guess that Azurion may be the cheaper way to go. Judging by what Duke University Health System recently paid for EPIC ($700 million), it is probably beyond the means of most individuals.

Another thing that an enterprising patient may want to try in their idle moments between chemo cycles is running a custom deep learning convolutional neural network analysis on their lymph node biopsy scan data. It is not inconceivable that capable patients might want their own early indicators on whether they have any potential metastasis. Alternatively, many may simply want to get a second cutting edge deep AI opinion. Fortunately, in talking to Ronald Tabaksblat, business leader for Philips Image Guided Therapy Systems, I learned that Azurion can already seamlessly connect to cloud based solutions for image analytics and display. Specifically, to wares provided by the likes of Proscia for breast and lung cancer, and the now FDA approved cardiac imaging platform from Arterys.

So what else might one do with Azurion?

One brilliant way to put Azurion to productive use is in MRA and CTA (MRI angiography and CT angiography). In these types of scans a 'harmless' contrast agent is given to the patient to visually enhance the vasculature. The problem is that contrast agent (which curiously makes you feel really warm, and also puts a metal taste in your mouth) probably isn't so harmless, particularly if you need to get scanned regularly. Azurion simply uses pre-acquired contrast image data in subsequent scans so contrast isn't needed each time.

As compared to injecting mere contrast agent, something all together more delicate would be the precision injection of a chemotherapy like doxorubicin into specific arterial branches of the liver vasculature. Here, Azurion or a technology very much like it would be essentially for tracking the full 3-D real time picture. If controlling that procedure isn't challenging enough for your software package, then consider an even more eclectic way to spend an afternoon, namely getting a ' Magnetic Resonance Thermometry-Guided Stereotactic Fiber Optic Laser Thermal Amygdalohippocampotomy'. We will have to wait and see

whether this dauntingly technical beast of an operation will ever become a routine pulldown menu option on Azurion.

More information: — www.prnewswire.co.uk/news-rele … tform-614495913.html

— www.usa.philips.com/healthcare … rces/landing/azurion