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## INTERVIEW

# Interview Series: Harry Lykostratis, Orthopedic Registrar, London North West University Healthcare NHS Trust

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In our latest interview we spoke with Harry Lykostratis, Orthopedic Registrar at London North West University Healthcare NHS Trust and Managing Director at Open Medical Ltd.

Last week we covered the **news of the trust introducing a tool developed by Harry** to help clinical teams monitor and track the progress of COVID-19 patients in intensive care.

Harry was reassigned during the pandemic from orthopaedics to support the intensive care team. He adapted a digital tool that he had developed in order to manage orthopaedic patients, and created software in order to manage patients during the COVID-19 pandemic in intensive care and beyond.

In this interview we ask Harry a few questions about the tool.

### Can you tell me about yourself and your organisation?

I am a software developer. My passion for this started years ago; a long time before going to medical school. After graduating from medical school in Leicester, I did my surgical training and moved to London for further training in orthopaedics. This is where I developed a digital system for trauma management.

## Interview Series: Harry Lykostratis, Registrar, London North West University Healthcare



We used to list patients and their scheduled procedures on a big white board at the hospital where I worked. Orthopaedics is a little bit different from other specialities, in that we often have a window of about two weeks from the time of the injury to the operation. This allows some coordination and queue management as some patients may be treated with a plaster or splint and would go home, in order to return to the hospital a week or so later for their procedure. In some cases, this is the preferred way of treating injuries as by the time of the procedure, the joint swelling and initial inflammation has settled. Tracking of cases is therefore very important, both for the inpatients and for the patients in

the community waiting to come back for their surgical procedures.

The traditional way of tracking this high traffic in trauma and orthopaedics is with a dedicated person called a trauma coordinator. The coordinator would use either calendars or whiteboards.

So, one day I turned up for a Saturday trauma shift and the whiteboard was wiped clean by the cleaner! So, I thought there must be a better way to do this. So, a system called eTrauma, version one, was born, and this was 9 years ago. It was a grassroots project. By word of mouth, more departments in different hospitals wanted to adopt the system, and we gradually started doing more and more installations. At some point, I thought that this needs a support structure behind it, especially as users started to ask for customisations: they wanted a checklist on it, and then an admissions list, and then the multidisciplinary team list...This then led to the creation of Open Medical Ltd.

This provided a structure to support our users. It wasn't commercial or trading, but a structure where we could actually do a service level agreement. We didn't monetise this until about two years ago.

Everything was very record based and when you have high traffic, the record is not as useful as the workflow. You want to track groups of patients, and how or where they are in their journey in care. And care became more and more complex, through presentation to where we have applications; the complexity came in and the traffic became higher. So, we ended up rolling out a clinical engine called Pathpoint, which revamped the whole system and we abstracted it from orthopaedics. This way the pathway ends can do anything, from data pathways to acute and outpatient pathways.

We moved everything to the cloud, so it is a cloud engine. The other initial issue was that we used a lot of free text, and as users were asking for data and reports, it was difficult to extract free text in an accurate and validated way. So we decided to code everything.

Pathpoint is designed to work with SNOMED CT. We started writing algorithms so when users start writing free text, the system has a clever algorithm with the popularity and suggested terminology.

The system has to be customisable. In trauma you can have 70 different types of pathways. The first thing we found out about workflow, local resources, and the different ways of working, was that it had to be customisable, so the pathway is specific for the clinical team.

**6 weeks ago, you configured the platform to track COVID patients, could you tell me a bit more?**

Right before the COVID-19 outbreak in the UK, I was doing two days clinical work at the hospital, and three days software work as part of the Pathpoint team. I enjoy and want to continue practising both professions; I enjoy patient

contact and so forth, and I love coding, and in health technology the one complements the other. So, when COVID-19 came, we had a lot of incoming interest at Open Medical. On the commercial side, agile transformation became necessary and everybody wanted to do remote working and virtualisation, and they wanted to streamline care using a pathway approach.

We started getting busy with more installations. We had an interesting one in trauma, at the Royal National Orthopaedic Hospital, which has traditionally never done trauma since 1986. They made a decision to take on regional trauma. We rolled out and set up a trauma service on the digital side, and the service started running within a few days.

Whilst we were doing all of this, North West London Hospitals had a high volume of COVID-19 cases as we all know, so they did some great things; intensive care units (ICU) traditionally have a low volume patient centric approach – 1 patient, 2 doctors and 3 nurses sort of setup, and this shifted to becoming a high traffic speciality.

They had a great idea at North West London Hospitals: they created a surgical support centre as many surgeons, primarily senior clinicians, all of a sudden had free time as elective procedures were put on hold in view of the pandemic. We figured out the processes both digitally and non-digitally are not set up for traffic in ICU. It was a complete shift.

We were already running eTrauma in this hospital and we thought “can we do something and bring over traffic control and traffic management into ICU”? We started building a traffic control system, which is needed with high traffic; everybody is running around to provide care, and you need a way to coordinate and track everything accurately and as real time as you can. Since Pathpoint was already deployed and was running the trauma packages for years, we essentially created a few ICU pathways, new teams and high dependency unit (HDU) teams, and pathways that would control that traffic.

It proved to be successful because it allowed everything to be tracked and helped all clinical staff to be on the same page. This was really important in an environment where you didn't know who was going to be on the next shift. For example someone could be infected and not turn up for his/her shift. Handover, coordination and traffic control became the cornerstone of providing that care.

It gradually evolved further, and the system started also being utilised for reporting. Daily reports were automatically emailed to relevant staff with vital information including breakdowns of how many cases were referred elsewhere or admitted, how many of those needed renal replacement, who is suitable for transfer out, and when they do transfer out where do they go to. The daily report would go all the way up to management and became a master application for COVID-19 management. It started as a traffic light management system for the COVID throughput, but it expanded further and further.

### **What has been your key learning over the past few weeks?**

I think it became obvious to me that low latency transformation and processes were the most important learning in fighting this. The NHS is a big organisation, where latency, lag and delay is a part of it, and we accept it. When we need something there is always a delay. I saw that when everybody was motivated, the transformation team, the IT team, we did the transformation in two days, whereas before it would have taken months.

The learning for me was that we can be lean. We can be lean in how we do transformation, we don't need to wait for a pandemic to move forward. We started thinking that delay is both inefficient and expensive and by the time you implement it, it has already changed. I think there will be some regression, slowly layers and layers will be put into place. I hope some of the culture and agility will remain.

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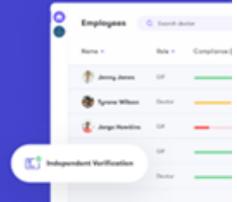
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