**LabMed Podcast Ep 7 - Mayur Patel - FINAL**

MUSIC JINGLE

**VO - Welcome to *Life in the Lab*, brought to you by the Association for Laboratory Medicine. I'm Kamiljit Chatha, and I'm a Consultant Clinical Scientist at University Hospitals Coventry and Warwickshire NHS Trust. In this series, we bring you inspiring stories of clinical scientists and medics working in laboratories in the UK and around the world.**

**Elsewhere in the series, we’ve been diving into the world of lab researchers. But today, we’re changing things up and hearing from a clinician - someone who bridges the gap between patient needs and the lab processes.**

**Meet Dr. Mayur Patel, a Consultant Chemical Pathologist at Oxford University Hospitals NHS Foundation Trust.**

We're operating a large service. The repertoire of tests is so large  and far reaching, we have involvement in most aspects of medicine.  The parts I enjoy include just working with clinical colleagues. I work with my colleagues in the laboratory, so biomedical scientists, clinical scientists, clinical colleagues, to run the service, solve any problems that come our way which are generally unpredictable. The laboratory never shuts just because the hospital doesn't shut.

**Believe it or not, of all things, Mayur ended up in this field because of... hormones!**

I didn’t go straight to medical school, so I had an academic background. So, I started off with a biochemistry degree, and then a molecular medicine degree. And it was there where I was exposed to endocrinology, which I really liked at that stage. It's a specialty which is looking at hormones. And the term hormone is basically a messenger, which is secreted by an organ in one part of the body and it's transmitted by the blood to another part and sends a message.

So, a common hormone might be something like TSH, which is secreted by the pituitary and the brain. And then it's in the circulation and goes to the thyroid gland, which is in the neck and stimulates the secretion of thyroid hormones. And sometimes there might be a problem with one of the organs which is producing too much or too little hormone, and that has a knock on effect on the body and causes specific signs and symptoms.

I just enjoyed endocrinology a lot. And I always felt that I’d follow that field more and that led to my PhD, which was looking at the molecular regulation of steroid production. And it was then I realized that what I was doing in the laboratory was a number of steps away from benefit to people.

So, I decided to change over to medicine.

And then I found the chemical pathology role by accident online and it was the Oxford Deanery website. It had everything that I had done previously in my degrees, including biochemistry, molecular biology, including the clinical aspect and it included endocrinology. So, that's what I applied for.

MUSIC INTERLUDE

I think in each stage of my career, I've just been very fortunate to have the right people to advise me, really. When I was doing my PhD, I hadn't realized that my PhD supervisor was actually a consultant clinical biochemist, so a clinical scientist, because I was just so naive or focused on my PhD.

And then, around 10 years later, when I was looking for the chemical pathology job, it was another consultant clinical biochemist who helped prep me for the interviews. So, Gary John at Norwich with Professor Bill Fraser. He ripped me apart in the mock interview, which was very good. And then, that prepared me for the real national interview and I got a place here in Oxford.

**In 2017, Mayur made the move from Oxford to become a consultant at Great Western Hospitals NHS Foundation Trust in Swindon. And it wasn’t long before he found himself connecting the lab with the hospital’s entire IT department.**

I became interested in the IT systems that were there largely because we didn't have electronic requesting or blood tests and results going back into the clinician's inbox. It was all paper based.

Anyone who works in the laboratory and specimen reception and has booked in samples, which have been requested using a paper request form, will know that many details are missing. Quite often we don't know who the requesting clinician is or their writing is illegible.

Sometimes, if a biopsy sample has been sent by the surgeon, it's helpful for the cellular pathologist to know where that's come from. So, there might be a drawing on paper. But then how is that stored for the future? And, you know, that needs to be scanned. So, there were major improvements that could be made there. All of the systems were disjointed.

So, I took on a role as a chief clinical information officer, which is basically a clinical lead for IT. And I had a counterpart that I worked with. And in that role, we're basically horizon scanning for new IT systems, which will help the hospital and improve patient care.

I could see similarities with biochemistry because it's so far reaching. I was then exposed to anyone who had a question or wanted an improvement from the IT aspect, which is much wider than being a biochemist.

MUSIC INTERLUDE

We managed to get this through and have an electronic requesting system, which is still not perfect, but it was something that was better.

There aren't many people in chemical pathology or clinical biochemistry who venture into the IT side. So, it's something I would encourage the clinical scientists and chemical pathologists to undertake if they're really interested in improving the digital services.

**While Mayur was at Swindon, he often got approached by companies working on analyzers—those high-tech machines that measure things like chemicals, cells, and other substances in biological samples like blood or urine.**

**These companies would pitch their products to him and ask if they could be used at Great Western Hospital.**

**Some of them were focused on identifying cardiovascular risk, which really caught Mayur’s attention.**

The analyzer company Beckman had produced a new test for high sensitivity troponin. And that enabled earlier detection of heart attacks. So, once I became aware of that, I contacted colleagues in cardiology in A&E, and, unknowingly, there was already a regular chest pain group meeting, which I then presented the data from Beckman to them. And then we worked on changing the chest pain pathway for the hospital, and what that resulted in was a shorter interval between measuring the troponin. So, on following patient admission, instead of waiting six hours to measure the second troponin, which would've undoubtedly resulted in that person's admission, it was changed to three hours.

And this resulted in increased discharges, and also, a reduction in people waiting with chest pain in A&E by 52 percent. So, there was a massive reduction and massive effect. So, that's the kind of change that we can be involved in.

**While Mayur was focused on cardiovascular risk reduction, he started to learn more about a silent risk factor for heart disease and stroke: Lipoprotein (a)... or ‘LP little a’, as it’s known.**

Lipoprotein (a) is basically a small cholesterol molecule very similar to LDL cholesterol, which is also known as bad cholesterol. And when bad cholesterol or LDL is elevated, it increases the risk of heart attack and stroke. And similarly, that's what Lipoprotein (a) does as well.

But it's just stickier, it increases the risk of clots in the circulation, and causes inflammation as well.

# **VO - Just to add, LP(a) is a genetically determined risk factor for cardiovascular disease, and up to 20% of people worldwide have high levels of it.**

That's a significant number of people.

The traditional cholesterol lowering drugs like Statins have very little effect on lowering LP(a).

There's a strong opinion that everybody should have their LP(a) tested at least once in their lifetime, because then it provides them an opportunity to modify their lifestyle, even if there isn't a treatment available. You know, they can do other things, lose weight if they need to, stop smoking, improve their blood pressure, lower their blood cholesterol, and try to mitigate the risk posed by LP(a).

The test isn't requested very much, because there's no effective treatment that will lower the LP(a). You could argue: “What's the point? There's no treatments that are readily available.” Telling somebody that they may have a high level might increase their anxiety.

But there's some clinical trials that are occurring at the moment, which have shown to lower the LP(a) literally by 80 to 90 percent. All we're waiting for really is the outcome data, which I would expect will show that there's reduction in future cardiovascular risk.

We do need to start increasing testing, getting ahead of the game and make sure that when treatments are available, we can start using them. Because I would say at the moment, there's not enough testing.

**In 2019, Mayur became Director of Clinical Practice for the Association for Laboratory Medicine. That’s when he joined the LP(a) Task Force - a group made up of charities, professional associations, and industry experts all working together to raise awareness about the issue.**

So, the aim of the Lipoprotein (a) Task Force is to simply improve testing, to ensure that the test that is used is the recommended one, which can accurately measure Lipoprotein (a). We're trying to achieve this by liaising with the governing bodies such as NICE.

**For those who don’t know, NICE stands for The National Institute for Health and Care Excellence. It develops recommendations and guidance for the NHS on treatments and procedures.**

We need NICE to include Lipoprotein (a) in the lipid guidance that they put out, it needs to go to the. broader population.

MUSIC INTERLUDE

Changing the way people work can be difficult and I'm not sure why people end up working in silos. When we're trying to change the way people work. It's all about the engagement and communication and then getting them on board.

And to get them on board, you've got to get them involved. And if they feel that they're part of the decision making process, then they're more likely to get involved and help.

**With the LP (a) Task Force, Mayur found himself crossing over into a new field again. This time, it was politics.**

There was an MP drop in session which occurred recently. And it was very interesting. It's something I'd never done before. I was there with colleagues from Novartis, Heart UK, and other hospitals.

The idea of doing that is to then encourage them to speak to local chief executives or the head of NICE and to promote our cause which is to improve Lipoprotein (a)testing, find out what these leaders are doing about it, if anything, and if they're not, to push them on that matter. So, that was the first time I'd been involved in this sort of event.

I don't know what I thought. I was more interested in the process and meeting the MPs who you'd sometimes see on television - the Speaker of the House, Sir Lindsey Hoyle - and they're all really down to earth characters, largely. But you literally do have a few minutes to speak to them and get your point across. So, we had to be succinct. And we also wanted to speak to as many as possible. And then the idea is to hold them to anything they've agreed to with us to promote our cause.

MUSIC INTERLUDE

The work is still ongoing. And our group has fed back with respect to the NHS 10-year health plan consultation. And then there may be other parliamentary engagement meetings as well.

It’s very interesting, and I've never been involved in this aspect of promoting a test compared to what I'm used to doing.

**Since 2024, Mayur’s been back at Oxford, and the future’s looking exciting. While it might take a little time for LP(a) testing to really catch on, he’s already gearing up for new projects, cutting-edge technology, and fresh ideas to take his Trust to the next level.**

The results of these clinical trials will be really important to push everything ahead because once it's realized that there is a medication available to lower LP (a)and that there is benefit, then the testing will become a no brainer, hopefully. But everything I think takes time to filter through. So, it'll be a number of years before I think there's any further movement.

But I think what we're doing through the Task Force is just trying to accelerate that so we stay ahead, and we reduce people having heart attacks, strokes, and admissions to hospital.

So, there should be benefits all around.

In terms of chemical pathology or clinical biochemistry, there's still lots of new tests coming and we'll be looking to implement those or improve pathways. Point of care testing or near patient testing is really taking off. And specifically, I'm also looking at the application of artificial intelligence in clinical biochemistry and that's with one of the AI professors at the University of Oxford.

It's already well known for being able to interpret images. So, certainly in cellular pathology where they're looking at slides, what currently happens is there'll be two clinicians who provide a report. So, there'll be someone who provides the first report and then someone who second checks that. But because the NHS England want all of these tests to be reported within 10 days, which makes it very difficult because there's not enough cellular pathologists, you could use the AI to provide the first report and then the second report would be a human checking it. So, that would improve the turnaround time of results and improve efficiency.

I'm particularly interested in improving clinical care, so that could be that it’s used to aid clinical decision making, interpretation of blood results and risk prediction, detecting diseases earlier.

So, the AI can help look at things in more detail. And the more data we put in the better it will be, because then if we include medications, then it can take the effect of those into account on the results that we're looking at.

We're only at the very beginning of these projects. It’s looking at ways reduce the number of patients coming into hospital in the first place, improve the patient pathway, and improve flow through the hospital.

It will be to continue to improve the laboratory service.

**VO - For a transcript of this episode or for more about Mayur Patel and his work, visit our website at** [**www.labmed.org.uk**](http://www.labmed.org.uk)**/podcasts**

**This podcast is brought to you by the Association for Laboratory Medicine. Produced and edited by Caroline Bacle, sound mixed by Daniel Fletcher. Special thanks to Avi Surskas and everyone in the LabMed team.**

**And we’ll be back next time for more stories of *Life in the Lab*.**

MUSIC JINGLE