



Valued Clinical Leaders Share Perspectives on the Importance of Laboratory Medicine: A Conversation with Prof. Manu Vatish, Dr. Martin Than, and Prof. John Dillon

Clinical laboratories are essential partners for measurably better healthcare. Value realization, however, is not always universal or applied in everyday practice. Thus, widespread opportunities exist for enhanced cross-disciplinary integration and problem-solving in healthcare.

This article shares key perspectives, insights and experiences from three clinical experts with globally recognized best practices for teamwork, innovation and healthcare excellence. All three leaders are active champions of laboratory medicine with excellent strategic relationships both within and outside the core laboratory. Through those partnerships, they have each led integrated clinical care teams with extraordinary outcomes, including winning recognition from the UNIVANTS of Healthcare Excellence Awards Program.

- Prof. Manu Vatish is Professor of Obstetrics at the Nuffield Department of Women's and Reproductive Health at the University of Oxford and an honorary consultant obstetrician at the John Radcliffe Hospital, Oxford University Hospitals NHS Trust, Oxford. His team was also recognized in 2019 with elite top honors of the UNIVANTS of Healthcare Excellence awards for *Improving safety of mothers and their babies using angiogenic biomarkers for pre-eclampsia*.
- Dr. Martin Than is an Emergency Medicine Specialist at Canterbury District Health Board in New Zealand. His team was recognized in 2020 with an UNIVANTS of Healthcare Award for *Reducing patient risk and enhancing care through the development and implementation of a new chest pain pathway expedited by and for the COVID-19 era*.
- Prof. John Dillon is a Professor of Hepatology and Gastroenterology in the School of Medicine, Ninewells Hospital, University of Dundee. He is also an honorary consultant with NHS Tayside. His team was recognized in 2019 with an UNIVANTS of Healthcare Award for *Intelligent Liver Function Testing (iLFT): A cost-effective way to increase early diagnosis of liver disease*.

How does laboratory medicine contribute to your profession?



Prof. Vatish: Laboratory medicine is an essential part of my clinical practice, from routine biochemistry and haematology to more advanced tests such as angiogenic marker ratios. As an academic clinician, I also interact heavily with laboratory medicine in a research capacity. I have found that the laboratorians apply significant rigour to the assessment of data and interpretation of results.

Finally, the laboratory has a “helicopter view” of diagnostics in a range of different diseases and conditions and this is a unique resource within the hospital environment.



Dr. Than: Laboratory contributions are absolutely vital pieces of information that we cannot do without. The fact that clinicians may sometimes take it for granted doesn't make it any less necessary. In fact, it's better that none of us take anything for granted. It is better you understand the issues around how services are provided because when you're looking at new possibilities to redesign your system or patient flow, you've got to take other systems into account. Every health system has so many components and nobody knows how every component works. It is only when teams sit back and look at different things, when we realize that some of the simplest components that you take for granted are pivotal to actually getting stuff done.



Prof. Dillon: I agree with that “helicopter view” and certainly, biomarkers are a part of that. Laboratory medicine however is now also helping us sort out problems of triage as well as how to better use the information and data from the laboratory. This includes new biomarkers, as well as putting existing biomarkers in context, tests are not always about individual results, but rather are patterns across results. We've done this with intelligent liver function testing (iLFT), which enriches the value of the results. As a hepatologist, a major part of my workload comes from the measurement of liver function tests (LFTs). Symptoms of liver disease are often general and non-specific. Thus, LFTs trigger entry into my specialty. There's a downside, however, as LFTs are increasingly being used as a general test of wellness. So, it can be a double-edged sword, presenting the opportunity to find liver disease early, but needing to triage a large volume of test results.

What are the clinical success factors that enable success?



Prof. Vatish: Good working relationships, communication and accessibility are key drivers for successful interaction and implementation of tests. Understanding the fiscal framework in which both the laboratory and the clinical department operate is also critical, since the funding streams for the implementation of tests need to be synchronised. This is also important for making business cases since the clinical department and the laboratory medicine department are usually under different budgets and the capacity for implementation to be prematurely halted is higher in these situations.



Dr. Than: Bilateral communication, as well as understanding the viewpoints of others are key in order to solve problem together. In New Zealand, there are perhaps less hierarchical relationships between disciplines and different health professionals than is some developed nations in which I have worked. So, perhaps it is easier for a technician here to have a conversation with someone who's normally considered much more senior. Importantly, we should aim to reduce those barriers. Until then, it becomes even more beholden for clinical leaders in the hospital to try and bridge these gaps.



Prof. Dillon: Conversations are crucial. Laboratorians have a very different set of parameters and drivers to those in clinical practice. If you've got a problem, which I've alluded to earlier, you need to have conversations with the lab to help solve them. Thereafter, it is easier to understand and even change each other's workstreams, even workstreams that are coming from primary care or other specialties. It is sitting down together the way to understand the problems, commonalities and solutions. From the laboratory point of view, for example, with our liver disease example, they were spending more and more of their time repeatedly measuring LFTs, knowing that some of them were vitally important, even though some of them were also probably a waste of time. They wanted to try and manage that pattern, and the iLFT that we developed has dealt with the problem of triaging out the ones that are important. Now, we have confidence around identification and triage. We are now looking into how to reduce demand for the unnecessary repetitive testing.

What example(s) might you want to share whereby lab medicine made a substantial difference to your patients and/or care?



Prof. Vatish: We care for women with pre-eclampsia and were invited to undertake a trial assessing the effectiveness of the angiogenic biomarkers sFlt1 and PlGF in directing care. During the clinical trial we were able to work with the laboratory to obtain rapid test results with outcomes, including on our electronic systems for easy access without telephoning. The trial was also randomised by our laboratory staff, revealing results to the clinical team or not, depending upon the randomization. After successful completion of the trial and co-publication of the results, we moved forward with a full clinical implementation of the test and again an excellent interaction with the laboratory team facilitated a successful business case. The strength of the collaboration was recognised by a number of awards, including elite top honors with the UNIVANTS of Healthcare Excellence award program in 2019.



Dr. Than: I'll give an example with Troponin. Everyone is trying to reduce turnaround time for this vital test. I think generally we hit around 90 minutes for most of our patients and we obviously wanted to do better. While discussing how to do that, we realized that in the initial phase, the blood was going by a pneumatic tube system to the lab for specimen reception. When it was dropped into a cage, there was no easy viewing of prioritization among the canisters. The forms from emergency are blue with the intent to take priority, but no one could see the blue forms within the blue plastic cannisters with ease, especially when there were hundreds to sort through. So, they proposed a different colored cannister for troponin requests. Doing so, took 30 minutes off our turnaround times immediately. So, I think it's a good example of collaboration through better understanding of what is actually happening from another's perspective. We were saying that we needed a faster assay, and they were able to improve flow differently, making a real difference in care.



Prof. Dillon: Our best example is the iLFT project. The program is now changing clinical practice across the UK and globally and was based on ideas that came from the conversation among colleagues including laboratory medicine. iLFT solved our dichotomous problem of wanting to detect liver disease earlier to prevent catastrophic consequences if detected too late, but not being overwhelmed by the volume of work. As we were problem-solving together, we began to realize that a lot of what was being done in clinical hepatology was automatic medicine; if you've got an abnormality, then you're going to do this series of tests. Depending upon those results, you're going to do another series of tests. Simple choices led to logic trees (or decision trees), which could be automated. It was an amazing experience as chatting with the laboratory staff enlightened us on the capabilities of the instruments that they already had available within the lab, but simply weren't being used in this regard. With relatively easy manipulation of algorithms, we were able to effectively manage all our patients with high quality medicine, while doing it in a way that had cost savings to the health system.

What advice do you have for laboratories who seek a more strategic role in collaborative patient care?



Prof. Vatish: Direct interaction with clinicians is key. This needs to be a healthy collaborative relationship and involves seeking out clinicians who are willing to enter into this kind of partnership; one that will allow a strategic collaborative role in patient care. Clinicians are frequently unaware of new tests and technologies and are likely to be very enthusiastic if these tests have a clear place in their clinical practice. Garnering this enthusiasm will drive collaboration, allow research and facilitate a pursuit of successful business cases for implementation.



Dr. Than: The common theme is building relationships, and ideally, doing so before problems need solving. Our teams for example partake in cross-department events to help cultivate greater team interactions. We have found that it is easier to problem solve with others once relationships are already formed.

Not to criticize core laboratories at all, but sometimes clinicians can feel that there is an appropriate, but unintentionally counterproductive emphasis on precision, when there are so many other aspects in a patient's care pathway that should be emphasized. An example is when troponin results are near the 99th percentile, we later found out the laboratory was rerunning those test results to make sure it was exactly right. Meanwhile, we did not want them to rerun it. We just wanted the result quickly. The rerun added huge delays, and I had no idea that this was happening at first. So, that's a really good example of someone trying to do the right thing, but it's not necessarily in the context of what the other person needs, and vice versa. It is important to work together.



Prof. Dillon: I completely agree that conversations between clinicians and laboratorians are crucial. A great deal of problem-solving can occur simply by appreciating workstreams, as well as the needs and capabilities across teams. I also think that laboratories have a big role in the strategic view across the whole of the system, as the latter is something that many clinicians who are looking after the patient in front of them may not always have. Broader perspectives can be valuable by helping to improve the quality of care across entire communities. Working together is how problems get solved.

For those interested in learning more about the UNIVANTS of Healthcare Excellence Awards and/or any of the globally recognized best practices associated with the healthcare excellence program, including those from Dr. Than, Prof. Dillon and Prof. Vatish, please visit www.UnivantsHCE.com.