Optimized Workflow Achieves Impressive IHC Results.

By Sofie Kjærsgaard Hansen

A strong need for a lean and faster process, more efficiency and high staining quality made the team at St. George’s Healthcare NHS Trust choose the Leica BOND-III instruments. Today, the laboratory has impressive achievements to share.

In April 2011, three Leica BOND-III immunohistochemical advanced stainers were introduced to the Immunocytochemistry Section at the St. George’s Healthcare NHS Trust in London, United Kingdom. At St. George’s, the decision to purchase the Leica stainers arose from a need to change the way of working in order to optimize the turnaround time in the laboratory: “The workload simply didn’t go through the laboratory quick enough. We couldn’t provide the service to keep up with the main lab. And with an increase in workload, but not in staff, we had to make changes,” Kay Elderfield, M.Sc. Chief Biomedical Scientist in the Immunocytochemistry Section, explains.

Kay Elderfield, M.Sc. Chief Biomedical Scientist says the efficiency gain at St. George’s is enormous.
The Perfect Equipment

The laboratory processes approx. 40,000 IHC slides a year using a broad menu of more than 150 antibodies and having a staff of three full-time employees. When looking for a new IHC stainer, the team had four main requirements. They wanted a lean process, high throughput, speed and high staining quality. Kay Elderfield elaborates: “I wanted to show the journey of a sample and get away from batching. I wanted to become much LEAN’er, get a fast turnaround time, and keep the same staining quality. I wanted it all. The BOND-III has absolutely lived up to my expectations.”

The Numbers Behind

The efficiency gain of the laboratory has been enormous, Kay Elderfield says. “Today, 50% of our work goes out on the same day it was requested. The other 50% is out the next working day; including if there has been an error. If we get the requests before noon, we have the result ready by the end of that same day. Previously, we could only manage around 5% of our workload on the day it was requested; 95% would take more time - sometimes up to three working days if a machine error occurred.”

Dr. Barry Newell, Consulting Pathologist at St. George’s elaborates: “With the new system the reporting time for bone marrow tissue for instance has gone down by 0.8-1.5 days. This is one of the areas, where we have been able to follow the improvements in the turnaround time closely. If you make the request early enough, you get the result the same day. With our previous system, it was always an overnight process. It can be quite frustrating to have to wait for the chemistry. Now, we are able reduce waiting time by a day. The speed prevents cases from sitting on my desk. I like to get the diagnosis out as soon as possible.”

Workload at St. George’s

Figure 1: Workload during the period results were achieved. During May the workload at St. Georges went up by 32% in the number of cases and 39% in the number of slides going through the laboratory still maintaining the efficiency gain they had in May.

Figure 2: Average Turn-Around-Time (TAT) hrs. The volume of IHC tests that St. George’s were performing went up by 32% just after the new Leica BOND-III’s were installed in the period from February to May 2011. At the same time the laboratory managed to cut 10 hrs off the average turnaround time. From May to September the number of IHC tests went almost back to the previous level showing a sustained cut by almost 50% in TAT.
Results ready before and after implementing the Leica BOND-III based workflow solution

Figure 3: After the Leica BOND-III installation in June 2011 50% of the results go out on the same day and 49% on the following day. This is a dramatic improvement from the situation before the three BOND-III instruments were installed where only 5% of the results went out the same day as the request arrived.

Better Patient Care

Dr. Barry Newell adds: “When you take the patients perspective, one day is quite significant, because then you wait one day less. It’s great to be able to give a result to a patient so much quicker. It’s a terrible thing to wait for a pathology report.”

Same High Quality

“The staining quality of the BOND-III is really good. The crispness of the staining is perfect and the red kit is quite lovely. We did have good quality with our old system, but we had to work much harder to get it. So we haven’t lost our good quality, we have just gained a much faster turnaround time,” Kay Elderfield states and Dr. Barry Newell agrees: “and now the staining quality is as good as ever”

An Easy Technical Swap

St. George’s now has three fully integrated Leica BOND-III stainers. The installation went smoothly. “When the instruments arrived, we had a Leica Support Scientist come here for a week to optimize all of our protocols and all of the more than 150 antibodies. He also did intense training with two of us and basic training with everybody in the department. We could start using the stainers after only two weeks,” Kay Elderfield says.

A Different Mindset

Switching to a completely new working process was a big change for the staff and it took some time to get used to. Kay Elderfield explains: “It was a big change for the staff, because it’s such a different way of working. In our old process, we would get all the specimens at once. We would have these really busy times during the day, where everybody was working frantically, batching all the specimens together and processing them. Today, we follow the specimen through the lab, sample by sample. Now, the flow of the work is much better. Everybody loves it and the staff are much happier. The new way of working has improved our workflow a lot and we have gained much time.”

From the perspective of Dr. Barry Newell, the flexibility of the continuous workflow is a great win: “The continuous flow is another advantage. Now, I can put a request in at any time of the day. And if it’s before noon, I get the result the same day. That allows more flexibility in my job. From my perspective, it’s been a good change.”

Martha Loaiza, Biomedical Scientist, at St. George’s, did not have any problems adapting to the new lean and fast process.
Impressed by the Leica BOND-III

What are the BOND-III’s biggest advantages?: “I am very impressed with the amount of work that we can process in the same day. The increase in speed is really good. The quality control and the new way of working sample-by-sample works a lot better for us,” Kay Elderfield finishes.

Figure 4: With the Leica BOND-III solution, it is now possible to process 90% of the slides requested before midday. The goal of the laboratory of St. Georges’ Hospital is to process an ambitious 100% of the slides requested before midday. With the general changes in workflow and the implementation of the Leica BOND-III this seems to be a realistic goal.

The three Leica BOND-III immunohistochemical advanced stainers fit perfectly in the St. George’s lab.