



Agilent Case Study: Dako Omnis Workflow

Complete Dako Omnis Installation Resulted in Improved Workflow

Agilent
Dako

How one lab went from five stainers to two Dako Omnis platforms

It's not an easy decision to change an entire laboratory's way of working. Will the new solution deliver on the promises, or is it easier and more secure to just continue with the current setup? Providing evidence for improved workflow after the change is one way to be confident that Dako Omnis is the best choice.

An Agilent representative initially approached the laboratory from the Netherlands in 2017. After taking the time to learn about the laboratory setup and their challenges, the representative, working with Agilent's workflow specialists, was able to propose a new setup that could deliver:

- **A well-organized workflow providing improved efficiency**
 1. More capacity
 2. Faster time to case delivery
- **Efficient merging of manual and automated processes**
 3. Less hands-on time
 4. Continuous delivery of patient cases
- **Quantitative information to support the proposal**
 5. Simulations and documented effects of improvements

To deliver on these commitments, the Agilent Workflow Team first proposed a plan to analyze the current setup in the lab and created a simulation of a future workflow. This analysis focused on the lab's instrument use patterns, including analysis of hands-on time and patient case delivery time for their current and proposed system.



Dako Omnis

Dako Omnis enables you to run your patient cases as they arrive to the lab in a fully automated and lean workflow. You can start staining immediately or overnight, as needed for your patient cases.

A 60-slide capacity, together with six independent staining units, enables optimized patient case management with continuous slide loading.

A capacity of 60 onboard, temperature-controlled reagents eliminates the need to constantly switch reagents saving hands-on time.

Ability to load and unload slides and reagents while the instrument is running frees-up time and supports an efficient laboratory workflow.

The first study in 2017 mapped out their workflow system with five stainers, measuring 85 cases with 308 slides over 3 days. The analysis showed that the lab was already working very efficiently with the available equipment. However, the Agilent Workflow Team was confident, via the simulation, that only two Dako Omnis platforms would be able to deliver more capacity, with a shorter turnaround time and less hands-on time. As an extra bonus, patient cases would be delivered to pathologists continuously throughout the day and not all at the same time once or twice daily.

After installation of two Dako Omnis platforms and new processes for patient case management had been successfully implemented, the Agilent Workflow Team revisited the lab in 2020 to conduct another analysis. Data were collected to determine if the commitments had been met.

Commitment 1 - More capacity

The lab was assured that just two Dako Omnis instruments would be able to replace their five stainers. Over a period of three days analyzing the new Dako Omnis setup, the Agilent Workflow Team identified 108 patient cases using 442 slides, which was more than the 85 cases with 308 slides measured over three days in their old setup. Overall, the yearly number of IHC slides grew from 44,587 in 2017 to 48,284 slides (and 145 ISH slides) in 2020¹. Processing the increased volume of slides in 2020 is attainable using just two Dako Omnis platforms.

Table 1. The daily and yearly IHC slide capacity in the two setups.

	Before	After
Instruments	5x stainers	2x Dako Omnis
IHC slides per year (total)	44,587	48,284
IHC slides per year (per instrument)	8,914	24,142
Simulated capacity per day	150-250	150-250

Commitment 2 - Faster patient case delivery time

Out of the 3 days of workflow analysis in the laboratory, Day 1 had the best comparable number of patient cases and slides, making it a good representation for comparison of turnaround time at equal workload pressure. Cases completed on the same day were delivered 40 minutes faster (12% decrease) in the new setup. Patient cases that included an overnight run were finalized more than 2 hours sooner (10% decrease) in the new setup compared to the old.

1. Calculated based on the actual stained slides during the first nine months of 2020.

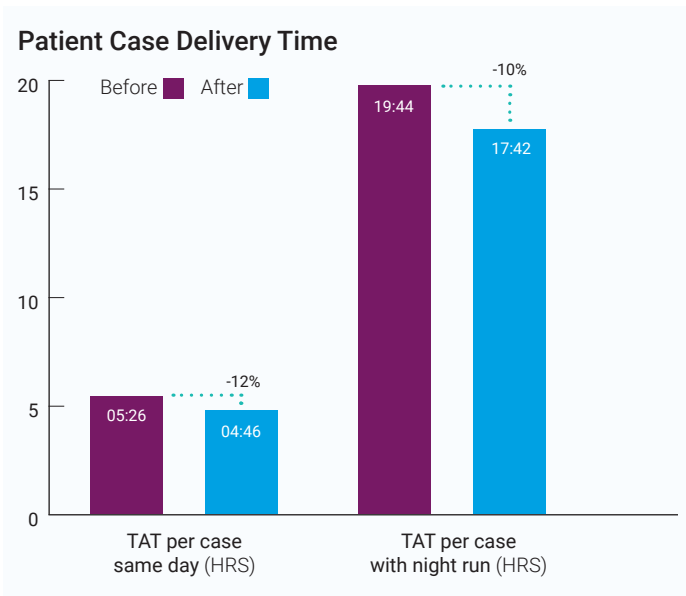


Figure 1. Comparison of turnaround time before and after installation of two Dako Omnis solutions. Number of slides before and after = 80 and 87, respectively. Number of cases before and after = 19 and 15, respectively. Only cases that were started Day 1 and completed on Day 1 are included in 'TAT per case same day'. Only cases that were started Day 1 and completed on Day 2 are included in 'TAT per case with night run'.

Commitment 3 - Less hands-on time

Again, Day 1 was selected to analyze hands-on time as it was most comparable in terms of number of slides and cases, thus representing an equal workload on the two compared days. In 2017, the hands-on time was measured at 1:46 min per slide vs. 1:08 min per slide in 2020. A reduction of 30% in total time for the entire day and 36% reduction per slide.

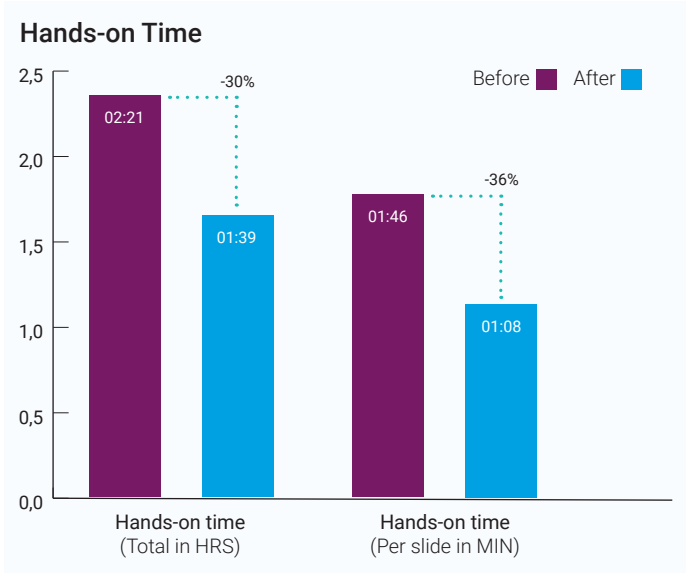


Figure 2. Comparison of hands-on time before and after installation of two Dako Omnis platforms. Number of slides before and after = 80 and 87, respectively. Hands-on time was measured for preparation of reagents and dilutions, sorting and QC

Commitment 4 - Continuous delivery of patient cases

When working in large batches and batch loading, it is normal that many slides are completed at the same time. This creates a bottleneck, where all the unloaded slides must be sorted and delivered in a big stack. By continuous loading and unloading throughout the day, the delivery of complete patient cases to pathologists is faster, smoother, and less stressful.

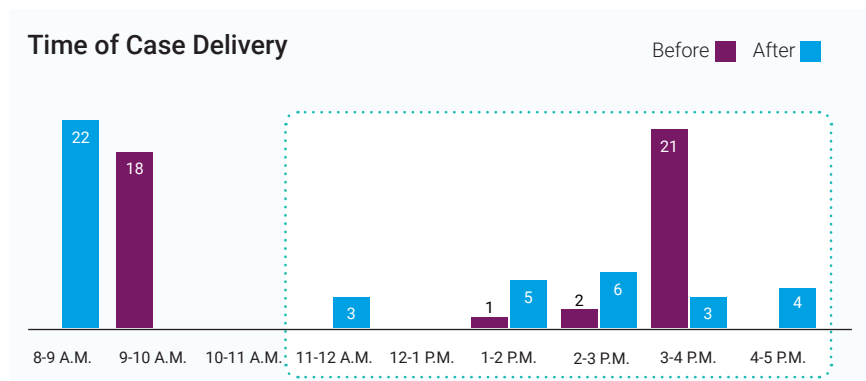


Figure 3. Before the Dako Omnis upgrade, slides were delivered in a big batch in the afternoon. With Dako Omnis, cases are completed continuously throughout the day (framed area). Overnight runs are delivered in the morning.

Commitment 5 - Documented effects of improvements

The Agilent Workflow Team knew that this laboratory was already running very efficiently with their available equipment when they first visited them in 2017. It was therefore paramount that they could prove to the lab that a change from five instruments to only two Dako Omnis instruments would be beneficial.

Having done the workflow comparison on two very similar days in terms of workload gave the team a chance to put solid numbers behind their original commitments to the lab, to document that what had been promised was in fact delivered:

Commitments	Results	Acceptance criteria met
1. Fewer instruments	Two Dako Omnis platforms replaced five stainers	✓
2. Faster delivery time	12% reduction for same day delivery 10% reduction for overnight runs	✓
3. Less hands-on time	36% reduction per slide	✓
4. Continuous delivery	3-6 cases delivered every hour in the afternoon	✓
5. Documented effects	Revisited the lab to perform measurements	✓

Conclusion

The Agilent Workflow Team presented a number of bold commitments to the already efficiently running laboratory back in 2017. Actual data had to back up the promises that two Dako Omnis platforms could replace their five stainers and that the lab would see improvement on a number of key workflow parameters.

Presenting the impressive data from two similar days before and after the upgrade confirmed that the workflow improvements were real and more than justified the decision to switch to Dako Omnis.

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