Workflow Management Through Intelligent Automation

Roche

National Blood Centre

Bangkok, Thailand

The National Blood Centre is the central blood collection centre for the Thai Red Cross Society who ensures the safety of blood samples and donations for the people of Thailand. The Centre is responsible for collecting blood from donors and distributing blood to hospitals and medical centres around the country.

The latest technologies are used to screen donated blood to ensure it meets the highest international safety standards. Safe blood is then distributed to regional blood centers and provincial Red Cross branches around Thailand for blood transfusion.

Ms Tasanee Sakuldamrongpanich, Assistant Director of the National Blood Centre, explained the role of blood screening laboratories: “Thailand has a high prevalence of hepatitis B and HIV. It is important that all blood coming from the Thai Red Cross Society is properly and safely screened for these and other infections.”


ศูนย์บริการโลหิตแห่งชาติ
สภากาชาดไทย
NATIONAL BLOOD CEN
THAI RED CROSS SOCIET

Challenges in the pre-analytical process

The National Blood Centre tests the safety of blood that will be going to patients all across Thailand. Each day, about 2,000 blood samples are processed at the National Blood Centre. This includes ABO blood group and Rh testing as well as testing for antibodies and infections such as syphilis, hepatitis and HIV. In addition to serology testing, Nucleic Acid Testing (NAT) is conducted for blood screening, using the advanced technology of **cobas**® 201 system.

The workload at the laboratories of the National Blood Centre has steadily increased. With the increased demand for NAT testing, the laboratory was under enormous pressure to improve and automate its workflow.

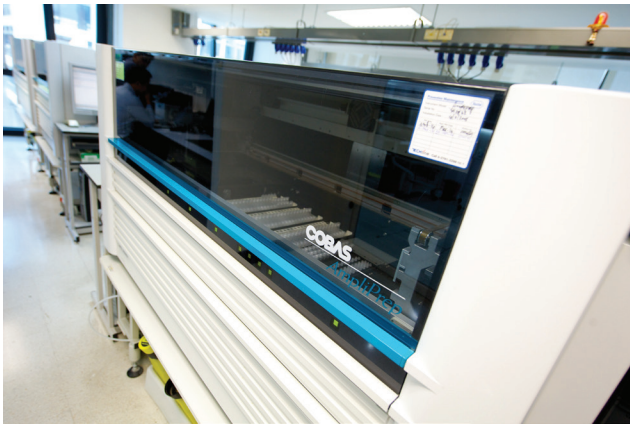
Ms. Sakuldamrongpanich described the past labour-intensive steps of processing samples:

"After serology testing, we had to manually scan and sort out positive samples and the samples that would require NAT testing had to be decapped manually. This sorting process can take a great deal of time and is prone to human error and contamination."

These challenges led Ms. Sakuldamrongpanich and her team to explore ways to improve efficiency at the National Blood Centre.

Boosting laboratory workflow

The LEAN concept is widely adopted by laboratories to improve efficiency and was implemented at the Thai Red Cross' NAT laboratory. The goal is to ensure better performance with reduced manual steps to deliver fast and accurate results. With LEAN, work steps have been reduced by 27 percent (from 61 steps to 44) while optimizing workspace.



As part of the effort to improve the pre-analytical process, two sets of **cobas**® **p** 312 pre-analytical system and **cobas**® **IT** 3000 application were introduced.

"We installed the automatic **cobas p**® 312 pre-analytical system and **cobas**® **IT** 3000 application as they offer numerous benefits in performance, accuracy and efficiency to our NAT laboratory."

cobas® **IT** 3000 application offers benefits to the laboratory. Once the results of serology testing are ready, they are sent to **cobas**® **IT** 3000 application allowing **cobas**® **p** 312 pre-analytical system to sort samples for NAT testing automatically.

"Previously we had to wait for a registrar to key in the serology results before we could sort the samples. With **cobas**® **IT** 3000 application in conjunction with **cobas**® **p** 312 pre-analytical system, our laboratory saw workload and complexity reduced."

"In the past, we would see up to five cases a month where the serology status of samples were missed or wrongly entered. Since the installation, we've had 100% accuracy for sorting serology-positive samples."

Ms Tasanee Sakuldamrongpanich
Assistant Director
National Blood Centre, Thailand


cobas p 312

Reduced complexity, increased control

Furthermore, **cobas p**® 312 pre-analytical system plays a role in reducing contamination in the laboratories. The system automatically decaps sample tubes, decreasing contamination risks for laboratory staff.

The continuous loading of samples to **cobas p**® 312 pre-analytical system allows uninterrupted workflow. In addition, the small footprint of the system maximizes the flexibility of placement.

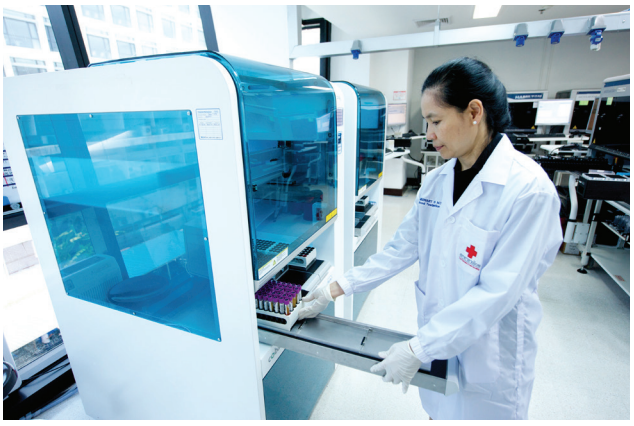
"We are able to improve our workflow management without forfeiting much space for the new system."

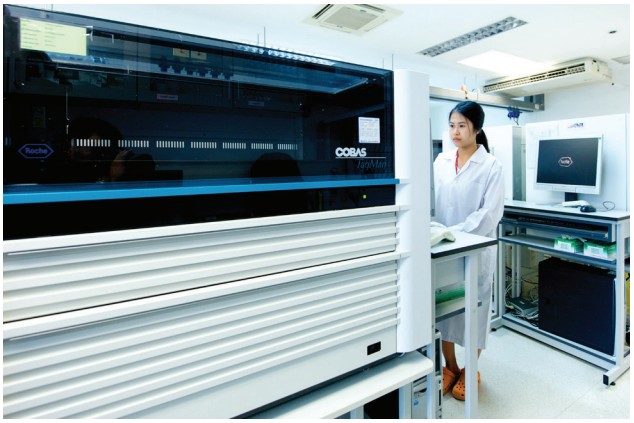
A combined solution

NAT testing is a vital part of the blood screening at the National Blood Centre. It is imperative for the laboratory to offer quick and accurate testing for major infections such as HIV, Hepatitis B and C.

NAT reduces the detection "window period", providing a higher sensitivity for detecting infections. In this way, NAT testing reduces the risk of disease transmission through transfusion and can indirectly reduce healthcare costs associated with the diagnosis and treatment of infections.

As **cobas p**® 312 pre-analytical system improves the processes prior to the NAT testing on **cobas**® 201, the National Blood Centre at the Thai Red Cross Society is experiencing a combined solution not only for analytical processes, but also for pre-analytical processes from Roche.





Seeing the improvements in her laboratory,
Ms Tasanee looks forward to greater performance.

"We look to install the cobas p 312 pre-analytical system in every regional blood centre to ensure sorting accuracy, timely results delivery and greater convenience for our staff in the NAT laboratory."


HAMILTON

Roche Diagnostics Asia Pacific Pte Ltd
8 Kallang Ave
#10-01 / 09 Aperia Tower 1
Singapore 339509
www.roche.com

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