

NHS Clinical Laboratory Network Improves Productivity and Efficiency with CellaVision® DM96

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Laboratory Profile

The National Healthcare Systems (NHS) clinical laboratory network is the largest laboratory chain in Thailand, covering all areas in Bangkok and nationwide. The laboratory chain has 5 laboratories operating in Bangkok and 9 others in other regions of Thailand. The core laboratory which is located in Bangkok hospital is the reference laboratory for all its network laboratories. Together they process more than 8 million tests per year through its expanded menu of more than 500 tests in the fields of clinical chemistry, hematology, coagulation, immunology, microbiology, virology, toxicology, pathology and molecular biology.

Core Hematology Laboratory

The core hematology laboratory runs 300 CBCs per day, with the need to review 50% of their blood smears, and 20% of those require manual differential counting. Blood smear review is a process that is time-consuming and difficult to standardize. It requires highly trained medical technologists to perform the task.

The laboratory has been using Beckman Coulter hematology analyzers for a long time. Despite having sophisticated analysis systems, microscopic examination of blood films remains essential in the hematology laboratory.

"In the hematology laboratory, we focus on accuracy and consistency of results," said Ms. Chatcharin Jearanaisilp, Assistant Director for NHS Network Laboratory Service. "With 160 medical technologists in 14 laboratories, it is a great challenge to standardize cell morphology reporting."

"We need a diagnostic provider that can offer a solution to standardize differential blood count across technologists, shifts and sites."

Searching for a Solution

In 2007, Sysmex proposed a solution using the Hematology AlphaN Transportation System, which combined the Automated Hematology Analyzer XE-2100 with an Automated Hematology Slide preparation Unit SP-1000i (Sysmex Corporation, Kobe, Japan), packaged with the automated image analysis system CellaVision®



Logo of the National Healthcare Systems (NHS)



Sysmex XE-AlphaN and CellaVision® DM96

Diffmaster 96 (Cellavision AB, Lund, Sweden. Hereinafter called CellaVision® DM96.) to manage their demanding workload more efficiently.

After 3 months of evaluation, the hematology staff welcomed the concept of 'automated digital morphology' using the CellaVision® DM96.

"It increased my confidence in reporting differentials. I am able to compare difficult cells using the reference cells from the reference cell library on-board," said Ms. Natthakarn Buadangdee, Medical Technologist. "Furthermore, the chances of finding immature cells in leukopenic samples are increased as the system has the capability to merge multiple slides on a single patient."

Benefits

The CellaVision® digital morphology system has been implemented in NHS core hematology laboratory for a year now.

"There is no doubt about the benefits of DM96," said Ms. Kanyaorn Chuaboonmee, Laboratory Manager for NHS Clinical Laboratory Network. "Besides improving the turnaround time for routine CBC from 45 minutes to 30 minutes, it has helped the laboratory to standardize blood count differentials among the medical technologists, especially after office hours."

"With the implementation of DM96 in our laboratory, we are able to provide an additional level of assurance to both our internal and external customers that our results are of high quality and are reliable. It has also helped us to meet our accreditation requirement through complete traceability of results at the individual cell level."

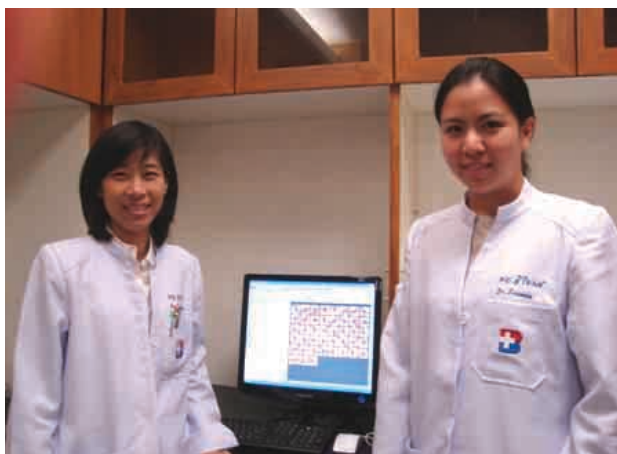
Dr. Supara Leechasan, Hematologist, Bangkok Hospital said, "I am very impressed with the expanded capability of DM96. The remote review software allowed me to access patients' cell images real-time from the remote review station at outpatient clinics. It saved me time not going to the laboratory."

The laboratory network uses the CellaVision® remote review software to transfer digital images and results to other network laboratories in Bangkok.

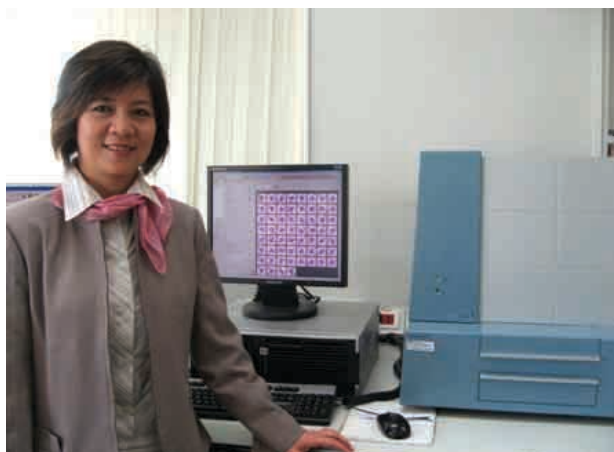
All analysis saved on CellaVision® DM96 can be opened and accessed at any laboratory or hospital in the network with this software.

"We have more confidence in the accuracy of the cell differential results," added Dr. Sirimon Piyavunno, Hematologist, Bangkok Hospital.

"Taking and saving digital images of stained blood smears on DM96 allowed them to be retrieved and reviewed again months or years later in the original condition. In addition, it allows the sharing of interesting cases during conferences or training."



Dr. Supara Leechasan (left) and Dr. Sirimon Piyavunno (right) with the remote review station at the outpatient clinic



"For NHS, digital morphology is a proven concept in a modern laboratory," said Ms. Jearanaislip

Moving Forward

"Besides striving to remain competitive, we also value the professional development of our staff, said Ms. Jearanaisilp. "We want to engage our people through training. The next step for us would be to ensure that each medical technologist can perform a proper differential."

The CellaVision® Diff IQ software on-board is an educational tool that is designed to ensure medical technologists are properly trained to perform manual differentials, as well as, improving consistency in

reporting the differentials. In addition, staff competency can be assessed by using digital test cases in its proficiency module. This allows supervisors to identify areas needing improvement.

"For NHS, digital morphology is a proven concept in a modern laboratory," said Ms. Jearanaisilp.

Acknowledgements

Authors thank Ms. Chatcharin Jearanaisilp, Assistant Director Network Laboratory Service, and her colleagues for their invaluable input and comments to this report.