New laboratory system in Edmonton automates testing at high-speed

EDMONTON – DynaLIFE is the first healthcare facility in Canada to install the Atellica laboratory system from Siemens Healthineers – and according to the company, it is also one of the world's largest implementations of the new and advanced technology. The solution provides the lab with flexible, scalable, automation-ready immunoassay and chemistry analyzers.

"With the installation of the Atellica Solution, we are able to run 7,500 tubes a day," said Jason Pincock, CEO of DynaLIFE. "We currently perform approximately 18 million tests annually across all departments at our Edmonton referral lab location. The Atellica Solution will eventually enable us to run more than 12 million additional tests each year."

Atellica is comprised of sample management as well as immunoassay and clinical chemistry analyzers and is an excellent fit for mid-and high-volume labs.

According to Siemens, it delivers unprecedented flexibility to adapt to changing testing needs and space constraints. The solution can combine up to 10 components into more than 300 customizable configurations including linear, L and U shapes.

It can operate as a stand-alone system or connect to Aptio Automation to provide a comprehensive, multidisciplinary testing solution that could include clinical chemistry, immunoassay, hemostasis, hematology, and plasma protein analyzers.

DynaLIFE is the first in Canada to connect the Atellica Solution analyzers to Aptio Automation with third party analyzers also running on the automation line, creating a uniquely customized offering to meet DynaLIFE's testing needs.

Aptio Automation enables improved utilization of lab resources, increased efficiency, accelerated processing, and consistent turnaround time for test results by combining intelligent technologies with Siemens Healthineers workflow expertise.



Pictured (L–R): Norma Page, VP, DynaLIFE; Lana Sammut, Siemens Healthineers; Luc Lavoie, Interim VP , Siemens Healthineers; Ruth MacPhee, Siemens; and Matt Coughlin, Marketing Director, Lab Diagnostics, Siemens.

Having operated in Canada for over 50 years, DynaLIFE provides diagnostic laboratory services to more than 2,000 physicians and supports 2.1 million community patient visits annually. In addition, DynaLIFE also provides testing for acute care and hospital patients from across northern Alberta.

Its services are provided by approximately 1,200 laboratory employees working at 35 sites including hospital laboratories, community patient care centres, and its central testing laboratory in Edmonton, Alberta.

"The Atellica Solution simplifies laboratory operations through intelligent sample management," said Lana Sammut, Solutions Specialist – Automation, Chemistry and Immunoassay, Siemens Healthineers. "It can process more than 30 different sample container types, including pediatric and tube-top sample cups that can be aspirated from the primary tube.

"Further, by using the same reagents and consumables across different analyzer configurations, laboratories can streamline inventory and deliver consistent patient results no matter where patients are tested."

One key feature is the Atellica Magline Transport, the patented bi-directional, magnetic transport technology that is 10 times faster than conventional sample conveyors, and provides innovative and unique sample management capabilities. The transport technology, together with a multi-camera vision system, intelligent sample routing, as well as automatic quality control (QC) and calibration activities (no daily hands-on), give laboratories independent control over every individual sample – from routine to STAT – to deliver rapid, high quality patient results to clinicians.

Powering the Atellica Solution is a comprehensive menu of 175 assays, including 10-minute turnaround times for key cardiac, reproductive and thyroid tests, with 32 more assays in the pipeline. The immunoassay analyzer features a patent-pending dual incubation ring design, temperature and humidity controls of the reaction environment, powerful magnets for relevant particle separation and robust washing protocols – all of which enable delivery of rapid, high precision results.

Digital capabilities such as auto verification and automated inventory management also help reduce cost. By auto verifying 92 percent of results, one hospital lab decreased manual labour while reducing errors by 74 percent. Another hospital reported time savings of 35 percent associated with automated inventory management.

DynaLIFE is the largest Atellica Solution automation site in the world as of early 2019, running 7,500 tubes in a single day.

"This installation will see three Atellica ScIs installed, comprising a sample handler, a CH 930 Analyzer and a IM 1600 Analyzer, which are connected to Aptio Automation in our Edmonton lab," said Pincock. "In addition to the Atellica Solutions, we have also connected the Roche Cobas 8000 automated system to the Aptio automation.

"This is the first time such an automated system has been installed in North America and will further ensure DynaLIFE lives up to its mission of making a difference in people's lives through excellence in medical laboratory testing, diagnostics and customer care," Pincock added. To find out more about the Atellica Solution: https://www.healthcare.siemens.com/integrated-chemistry/systems/atellica-solution-analyzers

Accessing the right information is still problematic in healthcare

BY ZENA RYDER

KELOWNA, BC – Communication between healthcare providers can literally be a matter of life and death.

Sue and her family know this all too well. One afternoon, Sue had been visiting her mother, Sylvia, who was in hospital recovering from an infection that arose during her cancer treatment. Sylvia mentioned she had a craving for a maple dipped doughnut. There was a Tim Hortons not far from the hospital, so Sue went to get one, leaving her mum resting comfortably.

When Sue returned, she found her mum unconscious, slumped over and drooling. Frantic, Sue rushed to track down the on-duty nurse. She became even more frantic when she couldn't find her.

There had been a shift change and now a different nurse was on duty, so Sue hunted for her. Eventually, she found the nurse and they hurried back to her mum's room. The nurse was visibly shaken by Sylvia's condition, and quickly checked her vital signs and summoned a doctor.

As the afternoon wore on, Sylvia drifted in and out of consciousness and the group of medical staff grew larger. Eventually, a doctor said, "You should probably gather your family, Sue".

This story illustrates a theme that ran through the presentations about data and AI at the 19th Annual International Healthcare Summit, held in Kelowna in June. As Dr. Denise Heaney put it in her presentation, "No matter what we do, there's a patient at the end of it. It's really important to always remember that."

What had happened to the patient, Sylvia? It turns out there had been a miscommunication and the nurse who went off duty gave Sylvia her pain medications just before leaving. Then the nurse who came on duty also gave Sylvia her pain meds. Sylvia received two doses of her medications about half an hour apart, resulting in her becoming unconscious while her daughter had stepped out of the room.

Fortunately, Sylvia eventually regained consciousness when naloxone was administered, and she recovered from this experience – although she died from her cancer a few months later.

This traumatic episode was related by Sue Paish, CEO of Canada's Digital Technology Supercluster. Sylvia was her mother.

Paish said, "If there had been an effective use of data, and it was clear when medications had been administered so nurses didn't need to search through notes, then there's a good chance my mum would not have received two doses so close together."

> **Integration of information sources is at a different state of maturity, and varies among facilities and jurisdictions.**

This is one example of a healthcare organization not making good use of data. Summit presenters touched on others, both in their presentations and during later follow-up conversations.

Dr. Denise Heaney is the Senior Scientific Affairs Manager, Diagnostics Information Solutions, at Roche Diagnostics. In her presentation, Dr. Heaney talked about tumour boards – meetings at which doctors and other healthcare providers discuss a cancer patient's case and recommend a course of treatment.

Dr. Heaney described software that improves how medical data is collected, stored, integrated, and accessed by the healthcare team. Using the software improved how specialists spent their time prior to making a recommendation at a tumour board.

She said pathologists were able to focus more on pathology and perform fewer non-pathology tasks. The surgeon, oncologist, and radiologist were able to spend more time reviewing pathology reports. Better use of specialists' time is, in the long run, likely to lead to better decision-making for patients.

The President and CEO of Life-Sciences BC, Wendy Hurlburt, agreed that effective sharing of medical data is

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Social determinants

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providers to understand the impact of living in poverty, how it correlates to chronic conditions like diabetes, asthma, arthritis, cancer, COPD and mental illness, and that there is something they can do to help.

"Awareness of that is still relatively low among providers," she said. "They think it's such a huge undertaking, but it's actually not as difficult as one thinks."

One area where screening for at-risk populations is growing is in nutrition. Heather Keller, research chair at the Schlegel-University of Waterloo Research Institute for Aging, developed a screening questionnaire that is now accepted as best practice worldwide.

The self-assessment tool is called SCREEN: Seniors in the Community Risk Evaluation for Eating and Nutrition and consists of 14 questions covering appetite, frequency of eating, motivation to cook, ability to shop and prepare food, weight changes, isolation and loneliness, chewing and swallowing, digestion and food restrictions due to health outcomes.

Originally created as a paper-based tool two decades ago, SCREEN has been gaining traction in recent years, in part due to the automation provided by the Ocean platform.

Instead of filling out paper questionnaires, patients are either presented with tablets in the waiting room or emailed a link which they can complete from home. Their answers are then integrated into their EMR.

"You don't have recording errors. You don't have concerns about a clinician having to do it during a clinic visit and wasting time," said Keller. "You just see the result and go right from there to the next step around treatment and consultation."

The idea for nutrition-screening was spawned when Keller was working as a dietitian in a chronic care and rehabilitation setting. She noticed that many seniors who

Detecting poverty and doing something about it is not as difficult as many healthcare providers may think.

came in after a fall were underweight and wondered if identifying nutrition problems early on could help with fall prevention as well as malnutrition, ultimately helping to keep people healthier as they age.

"I realized if we want to do anything to improve nutrition in older adults, we had to figure out how to measure it quickly and easily," she said, adding that the screening tool was developed with clinical practice in mind.

Five family health teams in Northern Ontario recently took part in a study involving the SCREEN tool, which was administered on Ocean tablets. According to Keller, the seniors found it easy to use and reported that the information provided raised their awareness of nutrition risk and how to overcome it.

"The Ocean tablet made it much easier but we still have to work out the process of who's going to hand the tablet to the senior, who's going to give them the result, who's going to give them the handout – those little process steps," said Keller.

Whereas nutrition screening in older adults experienced a slow uptake, a similar approach to nutrition screening in preschoolers and toddlers was quicker to take hold.

The NutriSTEP nutrition screening program, led by dietitian researchers from the University of Guelph and the Public Health Sudbury & Districts, with input from Keller, provides a 17-item questionnaire for parents to fill out.

Similar to other screening initiatives, they receive a personalized handout with specific recommendations for their child and links to more resources. When integrated with the EMR, the primary-care practitioner gets access to a summary of results and a calculated risk score.

"It's not just screening," said Keller. "It's an intervention in and of itself, because it raises people's awareness that,'Hey! I'm not eating as well as I should be' or 'I'm having some grocery shopping difficulties. Maybe I should think about that.'"

Accessing information is still problematic

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beneficial for patients. She said, "Medically linked data enables better understanding of a patient's medical journey and the treatments they're receiving. Many people with chronic diseases see multiple healthcare providers and specialists. Sometimes those professionals do not have the complete picture. With the complete picture, there's an opportunity to ensure treatments are holistic and effective."

Michael Billanti, Director of Population Health at Cerner Canada, said Canada is "lagging behind" in its effective use of medical data. He later made the point that

A lot of information is collected, sometimes with duplication, and often it is not shared or used effectively.

the problem of different systems not 'talking to each other' isn't just about between-province communications. Even within each province it's a huge problem.

For example, Billanti said, Ontario has a lab system, OLIS (Ontario Laboratories Information System), a drug repository, a radiology repository, ECHN (Electronic Children's Health Network, records), and so on. While they consolidate information in each of these areas, there is no overarching integration.

Moreover, lots of data is collected, but it isn't used effectively, and it's being collected separately over and over, creating a burden on the healthcare system – and ultimately harming patients.

Billanti said, "The emergency room has very few gunshot wounds and car accidents. It's mostly chronically ill patients whose care has been mismanaged." Because data isn't used effectively, people who could benefit from extra help managing their health – those who are chronically ill, have complex conditions, or whose social circumstances make managing their health difficult – are not being monitored and often they end up in ER.

Dr. Kimberlyn McGrail, Scientific Director of Population Data BC, emphasized the importance of 'regular people' being involved in deciding how to balance the risks and benefits of linked medical data. She maintains that it shouldn't be just a small group of experts who decide how to proceed, because these issues involve value judgements as well as professional knowledge. This means educating the public so they understand the relevant issues. It also necessitates discovering what people think, once they understand the issues.

How to provide clients and patients with an 'on-ramp'

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Elizz we have a clear mandate related to the problems we are trying to solve. We are focused on the needs of caregivers and giving them the tools they need to be healthy and feel supported.

I am also very pleased with our progress on Elizzbot, a chatbot that allows family caregivers to interact with experts and artificial intelligence technology to get the personalized answers they need, or to simply reach out for an empathetic voice.

We developed this friendly chatbot with the company X2AI, and we interact with over 1,000 active users per month. Elizzbot is at the forefront of our need to remain relevant and move with the times. It allows people to reach out to Elizzbot whenever and wherever they need to – by using a chat that's as simple as a text message.

I've shared just a few key examples that illustrate the impact that can be made on people when we bring together powerful resources. New technology solutions are not magic – for them to be truly transformative, they need to support frictionless integration.

The solutions that wrap around the client and existing processes are the most adaptable and adoptable. Let's keep the traffic moving and make changes that make sense in the context of people's lives. We need to fit in and move with the traffic; not build a new highway.

For me, it always comes back to the questions: Are we solving the right problem? How is this helping people? Is it making a difference? If we remain steadfast in our commitment to keep these questions front and centre, we'll be successful at making the world a better place.

Shirlee Sharkey is President and CEO of SE Health.

Denis Chamberland

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at work relates to healthcare group purchasing organizations and shared services organizations.

In Ontario, an Attestation of Compliance with the Broader Public Sector Accountability Act, 2010, must be signed by the Chief Executive Officer of BPS organizations, confirming compliance with the Directive in the immediately preceding fiscal year.

The attestation form sets out thirteen requirements and it asks the organization to (i): attest that it has complied with each of the thirteen requirements, or (ii) if compliance was not achieved, to indicate corrective actions proposed to bring the organization into compliance within six months.

It is standard for these organizations to provide their own attestations to the hospitals for which they procure, notes David Lacourt, Director, Procurement and Supply Chain at Hamilton Health Sciences.

He adds, "From the hospital's perspective the spirit of the Directive is to ensure that procurements within the public sector achieve a procurement outcome that is based on the principle of 'best value for money'.

This means that when the hospital and a private sector partner are making procurement decisions jointly for the benefit of the hospital, best value

The attestation form sets out thirteen requirements and asks organizations if they have complied.

for money is best achieved by conducting an open, fair, and transparent competitive procurement process, regardless of which organization is leading the process on behalf of the hospital. In short, the private sector partner is procuring on our behalf and so it must comply with the requirements of the Directive."

It may not be in every case where a third party procures on behalf of a hospital that the third party will be required to comply with the Directive.

But, particularly in a shared procurement, where the hospital and the third party work closely together to maximize value for the benefit of the hospital, there is no justifiable reason why the third party should not commit to complying with the Directive.

Either the third party relies on the procurement expertise of the hospital, in which case its procurement activities may be pulled into compliance by the hospital, or it develops its own procurement expertise to help the hospital meet its statutory obligations in respect of the contracted procurement activities. One thing remains: the hospital cannot absolve itself of its statutory obligation to comply with the Directive by contracting it out to a third party.

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