

VANCOUVER ISLAND HEALTH AUTHORITY

## Scattered and remote: Overcoming the challenges of distributed working

**Hematology laboratories are under increasing pressure to do more with less. To alleviate this stress and guarantee a consistent, efficient, high-quality service across their entire network, Dr. Brian Berry of the Vancouver Island Health Authority, Canada, turned to Digital Cell Morphology.**

Quickly producing consistent, accurate results is the aim for any hematology professional. Every blood sample must be handled with competence and care to ensure that clinicians—and, in turn, patients—get the high-quality services they need.

However, with heavy workloads, staff shortages and distributed teams, laboratories are facing many sizeable hurdles. These challenges are all too familiar to Dr. Brian Berry. Brian is Division Head of Hematopathology for the Vancouver Island Health Authority (VIHA), a hub-and-spoke laboratory network comprising 3 metropolitan 'hubs' and 8 small community 'spokes' across Vancouver Island, Canada.

"Our region is very spread out," says Dr. Berry. "Our Health Authority spans a very large geographic area with 15 hospitals, 13 of which have laboratories, and it takes six or seven hours to drive from tip to tip. We have hospitals at either end and scattered through the middle.

### A new approach to differentials

Dr. Berry wanted to provide top-quality services to clinicians and patients across their network, regardless of location. So, they explored how they could better tie all their locations together, to improve efficiency and speed up collaboration across sites.

*"Our vision is to bring the island closer together with technology", says Dr. Berry. "We want patients living all across the island and in remote communities to have access to the same quality and standard of care: not just those in the larger centers."*

The first step in creating such a network was to find a way to connect VIHA's larger hubs—so Dr. Berry searched for the right solution. They found it in digital cell morphology (DCM), and installed CellaVision systems at three of their metropolitan sites. This technology automates much of the cell analysis and review process; instead of a technician examining a slide under a microscope, CellaVision automatically scans and images a given slide before pre-classifying cells for manual review.

### Bringing the 'wow' factor

CellaVision brought a whole new way of working to VIHA. "It's quite revolutionary," says Dr. Berry. "It's a big step forward. As soon as you see it, you're just wowed."

The DCM technology connected the hub sites, streamlining various disparate workflows into one digitized process and making the entire review procedure more efficient. Technicians were able to not only process blood counts and slide reviews faster, but to collaborate at a distance to ensure that their results were accurate. They could also access cell morphology data immediately, either on site or remotely, around the clock.

*"The technology allows us to share knowledge across our Health Authority, as opposed to it being tied to specific location" enthuses Dr. Brian.*

The rapid delivery of results directly benefits real people, especially in scenarios where quick diagnostics are essential for treatment. When samples come in from the emergency room, for instance, these cases can be flagged, prioritized and performed in mere minutes.

“We’ve had cases of patients with potentially lethal illnesses that need immediate treatment being handled after-hours in the middle of the night with DCM,” Dr. Berry explains. “Instead of waiting until someone came in the next day to review the sample, it was taken care of in a matter of minutes because of our remote access to the technology. We made the diagnosis immediately.”

### **Confident, consistent, competent**

Alongside fast, remote access to data and expertise, the CellaVision analyzers provided tools that brought confidence, consistency and competence to VIHA. Technologists could compare results with an inbuilt reference library of cell morphology, and ‘drag and drop’ cells to review them side-by-side on-screen. The library exposed technicians to a wide range of cell morphologies, improving overall skill levels, keeping knowledge current, and enabling VIHA to provide consistent, standardized services to patients.

Consistency is absolutely key to overcoming the challenges associated with a geographically dispersed team, emphasizes Dr. Berry. “It’s all about standardization. It’s so much easier to reach your goals when every technologist is using the same set of procedure manuals, following the same policies, and has the same training competency. Any technician that goes from one site to another can sit down and use the exact same instrument without needing additional training.”

### **Connecting urban and rural**

Following the success of the DCM technology at their metropolitan hubs, Brian was keen to explore the possibilities it could bring to their entire network. So he trialed a CellaVision DC-1, a lower volume analyzer designed for smaller hematology laboratories, at a rural laboratory that lacked an on-site hematopathologist. Efficiency soared, and turnaround times dropped drastically.

*Turnaround times for slides referred to a larger laboratory used to be over 24 hours.  
The CellaVision DC-1 trial reduced this to just 3.8 hours.*

VIHA were convinced: CellaVision’s DCM technology was the right choice for not only their larger hub laboratories, but their spokes, too. They ordered 8 DC-1s, and installed them at a number of their medium-sized remote laboratory sites. “I believe we may have had some of the first DC-1s in the world, actually,” adds Dr. Berry. “If not the first ones, pretty close to it. We’ve had CellaVision at three of our hubs for a few years now: our most pressing issue was efficiency there, and the technology was best suited to larger institutions. But the DC-1 brought a solution for our smaller sites as well.”

### **Expertise on tap**

Like so many small laboratories, VIHA’s more remote spoke sites found it difficult to attract experienced technicians, and were therefore more vulnerable to the widespread staff shortages affecting both the region and the profession as a whole. They relied upon morphology experts based at the larger sites when faced with challenging or unusual cell morphology. ‘Difficult’ slides needed to be transported to larger sites—which could take as long as 48 hours.

*Prolonged turnaround times affect everyone: laboratorians, ordering physicians, and, crucially, patients.*

“Say that someone feels unwell, and goes to a small hospital that is hours away from our central hub,” explains Brian. “When reviewed, the peripheral blood smear meets the local criteria for an abnormal slide, so the technologist sends the slide to us for review. By the time the slide reaches us, it’s been 24 or even 48 hours. What if we find blast cells and it’s a child with acute leukemia? To offer top patient care, we want to return results while that child and their family are sitting in the emergency room, not days after they’ve gone home.”

Their digitized, connected DCM workflow is enabling VIHA to do just this: offer patients fast, accurate, location-independent care, without the need to transport delicate physical slides by courier. It renders irrelevant the physical presence of on-site expertise by providing remote data sharing and review capabilities, that's like bringing an expert to any site. "We have a virtual pathologist any time 24/7", says Dr. Berry.

### **Taking the heat off**

The technology also reduces the pressure of heavy or unmanageable workloads, relieving burdens on busy technicians and minimizing the growing threat of increasing staff shortages. "Technologists are overwhelmed by the amount of work they're doing," says Brian. "DCM allows us to manage that by centralizing some of that workload and taking some of the heat off so they can work in a less pressurized way."

*"A technologist can only do so much work," adds Brian. "The beauty of the DCM technology is that you can load it and walk away and do other tasks. One person can only analyze so many slides manually, but with CellaVision it's unlimited: it can perform as many as you can load."*

### **Looking to the future**

With DCM, VIHA have opened up a new way of working: a way that rethinks and changes up how hematology laboratories work. By bridging the gap between hub and spoke, the organization aims to guarantee consistent, reliable services island-wide. Their DCM-enhanced workflow is becoming increasingly centralized, streamlined, connected and seamless.