

Bringing Healthcare Into the 21st Century

Mary Ackenhusen

Innovation in healthcare is one of the great challenges of our time. Canada, like all developed countries, must reconcile changing demographics and fiscal demands with the need to provide patient care in a changing technological environment. As President and CEO of Vancouver Coastal Health (VCH), Mary Ackenhusen leads the largest academic and tertiary health authority in British Columbia, serving a population of 1 million with a budget of \$3.4 billion. Ackenhusen provides a window on how one regional health system is innovating toward more sustainable healthcare.

Our healthcare system is under tremendous pressure to balance patient care with financial pressures. British Columbia's \$18.8 billion dollar health budget for 2017/18 makes up almost half of the provincial government's overall expenditure, and BC invests more than \$600 million in health research on an annual basis. In order to ensure that research is being translated into better patient outcomes and to meet the demographic, disease and therapeutic challenges of the 21st century, we have to become more efficient at adopting new innovations.

Innovation may not be the only answer but it is a conduit for change. VCH is focused on leveraging innovative treatments, devices and processes to not only improve healthcare delivery, but also create a more efficient healthcare system. Here are a few innovative solutions VCH has recently trialed, demonstrating the shift from the typical acute care model:

TEC4Home

Telehealth Emergency Community Continuity of Care Connectivity via

Home (TEC4Home) is a tele-monitoring program that supports the safe transition of heart failure patients from hospital to home, bridging the gap between acute and community care. Patients go home sooner and daily electronic check-ins enable community nurses to help patients avoid subsequent emergency hospitalization. This benefits patients and reduces pressure on emergency room and hospital resources. VCH is also expanding tele-monitoring to patients with chronic obstructive pulmonary disease (COPD), establishing a new standard of care. TEC4Home is very important not only to VCH, but also to the province. Rural and remote communities face unique challenges with healthcare delivery, including limited human resources. Technology is an obvious way to augment staffing and other health resources in all communities, but it is time we start using technology to its full extent. TECH4Home is an important opportunity to target patient populations outside the hospital setting.

R-D and Canines

As part of VCH's commitment to find better ways to protect patients from 'superbugs', Vancouver General Hospital (VGH) assessed Ultraviolet C (UVC) disinfection as part of a five-month pilot innovation project. The Rapid Disinfector Ultraviolet DC (R-D) is a mobile, germ-killing UVC robot used to disinfect patient rooms, operating rooms and bronchoscopy/endoscopy suites. The process is automated and augments traditional cleaning methods. A lower-tech innovation that complements R-D comes in the form of a four-legged hospital employee. Angus, the English spaniel, is trained to sniff environmental reservoirs of the *Clostridium difficile* superbug with 95 per cent accuracy. Once Angus finds the hidden reservoirs of bacteria on hospital surfaces and equipment, the R-D is brought in to eradicate the germs.

Kelty's Key

Kelty's Key (www.keltyskey.com) is an online therapy service for adults managing mental health conditions such as anxiety and depression. The program provides Therapist-Assisted Internet-Cognitive Behavioural Therapy (TAI-CBT) to patients as well as self-help, education and training resources for common mental health issues. Plans are underway to develop a formal training institute to ensure this high-impact, made-in-BC program realizes its full potential.

These projects are examples that have been funded by research grants, industry and/or philanthropic dollars. However, due to relentless demand and cost pressures, once this initial funding runs out, it is often difficult to keep new

practices/projects going. This not only minimizes the benefits gained from innovation but continues to add to the financial burden on our health system.

Using PHIX to fix the system

The Pacific Health Innovation eXchange, or PHIX, is a new initiative in BC that is designed to facilitate the adoption of innovation in the healthcare system, beyond pilot projects. It is a partnership founded by Vancouver Coastal Health, VCH Research Institute, VGH & UBC Hospital Foundation and the University of British Columbia. PHIX is a research and innovation hub with a mandate to evaluate innovations to improve patient care, to facilitate the commercialization of innovations created through BC and Canada's investments in health research, and support the growth of health innovation companies in British Columbia. PHIX will use a commercial model to manage its finances, which will enable PHIX to adopt commercial accounting practices, enter into risk-sharing partnerships with industry, and to hold equity investments in new health enterprises.

Here are some of the challenges that PHIX is addressing:

- There is no formal pathway for innovators to interact with the healthcare system. PHIX is a single point of contact for innovators, entrepreneurs and businesses to engage with the healthcare system in relation to new products, services and practices.
- PHIX is creating a new process to evaluate the impact of innovations on healthcare delivery. The evaluation process will seek to quantify both improvements in patient outcomes and delivery of a clear return on investment.
- Current procurement practices are very cautious, which can be a barrier to purchasing the most efficient and effective innovations. PHIX is working with policy makers and purchasing teams to address the legal requirements of transparen-



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cy and fairness at the start of the conversation with innovators. The intent is to enable the healthcare system to be an effective customer, able to purchase new solutions that provide demonstrable value.

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- PHIX will focus on innovations and solutions that address major challenges in healthcare delivery, such as moving care from within expensive acute care hospital wards to the home or community, and supporting improved management of chronic health conditions.
- PHIX will work with the healthcare system to implement successful pilot innovations and facilitate the development of treatment

options with the potential to be scaled commercially.

- Gene sequencing and genomics offer great potential for health prediction and prevention and for personalized treatments. PHIX is exploring new business models that can maintain accountability and affordability while bringing the benefits of gene technologies to healthcare delivery.

VCH and its partners involved with PHIX are taking a strategic approach to the opportunities and challenges of delivering healthcare in the 21st Century, building on BC's leading health research and excellent clinical care. Creating a sustainable healthcare system requires change and a certain amount of risk. PHIX is an intentional approach to assess and validate new approaches to ensure measurable gains and value. It will create a new pathway to evaluate health innovations, create a new integrated model to prioritize innovative research and fuel the next generation of innovations to benefit British Columbia and beyond. **P**

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