

Thunder Bay Regional Health Sciences Centre and Thunder Bay Regional Research Institute. The Translational Research Program

BENCH-to-bedside" is a term you may have heard healthcare professionals use. It is the ability to move research from the scientific lab or "bench", to the patient "bedside". The process of doing this is no small feat. A robust process needs to translate the discovery research into first-in-human clinical trials with the ultimate goal of providing better care for patients through improved diagnostics, evidence-based care or improved outcomes.

The Thunder Bay Regional Health Sciences Centre is embracing a coordinated approach in moving research from the "bench-to-bedside" through the formation of the first ever Translational Research Program. This process will ensure relevant discoveries in patient care will benefit patients.

"Up until now, we have not had a coordinated, robust system to operate clinical trials at TBRHSC" says Tarja Heiskanen, Director of Translational Research. "Most of the clinical trials we have participated in have been done in departments with little support and in relative isolation to the rest of the organization, and these clinical trials have mainly stemmed from other sources," she explains.

"We want to ensure that we are able to conduct clinical trials at the TBRHSC that are relevant and benefit our patients. As such, we need to be part of the "bench-to-bedside" process in the exciting research that is beginning to emerge from the Thunder Bay Regional Research Institute (TBRII)."

The Translational Research Program will enable the full continuum of research to happen; beginning with discovery research, moving into to first-in-human clinical trials research, then



TBRII Founding Scientific Director Dr. John Rowlands beside the PET/CT at TBRHSC. Close to 200 patients have benefitted from PET/CT scans! The device is shared both for clinical and research use, and it is now part of the Translational Research Program.

onto commercialization- ultimately benefiting the patient.

"Ideally in such a culture of research, we hope to see more of the research being stimulated by our physicians based on clinical problems they see in their practice and being able to support their efforts through the processes offered by the Translational Research Program," adds Heiskanen.

This is starting to happen now at the TBRHSC and the TBRII within a few key scientific studies that are underway.

"In the area of High Intensity Focused Ultra Sound (HIFU) research, we will be conducting clinical trials that will determine the safety and efficacy of using HIFU to ablate or remove uterine fibroids" says Michael Power, VP Cancer & Diagnostic and CEO of the TBRII. "This clinical trial research is being done through Philips Medical, however, the science behind HIFU is being stewarded right here in Thunder Bay by Dr. Laura Curriel and Dr. Samuel Picardo of the TBRII in other applications such as liver metastasis" adds Power.

Ensuring research progresses to benefit patients is at the core of the TBRII's mission. The process of translational research will enable this to happen quickly and will mean being able to move from the "bench-to-bedside in as seamless a fashion as possible -- enabling research to bring discovery to life.

New study offers HPV self-sampling to First Nations Women

BY JANINE CHIASSON AND KIM LATIMER

SCIENTIST Dr. Ingeborg Zehbe has created a new cervical screening kit for women, allowing them to self-sample for the human papillomavirus (HPV) without having to make an appointment with a healthcare provider. HPV is the main cause of cervical cancer. Many independent research studies have shown that testing for HPV detects more pre-cancerous lesions than the Pap(anicolaou) smear.

First Nations women in Canada have a cervical cancer rate that is two to six times higher than the general population. According to Health Canada, cervical cancer is the third most common cancer in women aged 20 to 49 and most cancer-causing HPV infections occur among women in their 20s.

"Approximately 1,450 Canadian women will receive a diagnosis this year of invasive cervical cancer, and approximately 420 women will die from this disease ... primarily because they have not been screened at all or have been screened irregularly," Health Canada reports.

For forty years, the Papsmeear has been the standard protocol for cervical screening. The procedure involves at least one office visit or more if abnormal cells are detected. This new screening kit offers women an alternative.

"In the longterm this type of screening is easier, cheaper and more sensitive, particularly



Tumour biologist, Dr. Ingeborg Zehbe's research concentrates on virus-related cancer with a focus on HPV.

for women who haven't been screened or who have difficulty accessing a healthcare provider," says Dr. Zehbe, a tumour biologist and the principal investigator.

Her new study, titled A novel Approach in Cervical Cancer Screening: Self-Sampling and Testing for Human Papillomavirus (HPV) is the first pilot study to systematically address HPV testing based on self-sampling First Nations women in Northwestern Ontario. The pilot study took place in Fort William First Nation with the assistance of medical anthropologist Helle Moeller, who specializes in working with

aboriginal populations.

In her pilot study, Dr. Zehbe's HPV self-sampling kit was given to 49 women from the Fort William First Nation who screened themselves privately. The women were asked to take their own sample and mail it to a lab for HPV diagnosis and typing. Each participant also completed a questionnaire that Dr. Zehbe says will be used to guide creation of culturally appropriate educational resources aimed at improving participation in future First Nations screening initiatives.

Dr. Zehbe says the pilot project was successful because it was built on partnerships with the Fort William First Nation, Dilico Family Health Team, the Thunder Bay Regional Research Institute, National Microbiology Laboratory, Northern Ontario School of Medicine, Thunder Bay Regional Health Sciences Centre, and the Dalla Lana School of Public Health.

Dr. Zehbe and her partners are currently working to secure funding for a proposed next stage: a five year follow of 200-400 patients in a broader northwestern Ontario area.

"Once we've done the larger study perhaps this form of HPV testing could be commercialized and self-testing kits could be available for all women," she explains.

Early results show that women are generally positive about self-sampling. Dr. Zehbe says the sample collection was trouble free and specimen integrity was very high at 96%. The hope is that this early success may have future international significance for countries with large, remote populations who lack resources to initiate important disease screening programs. Mexico, for instance has a cervical cancer rate ten times higher than Canada's.

Dr. Zehbe says she hopes that by diagnosing and treating suspicious cells early with simple methods, many lives and healthcare dollars can be saved.

New Breast MRI device coming to Northwest will improve the detection of breast cancer

BY KIM LATIMER

A new breast Magnetic Resonance Imaging (MRI) device is coming to the Thunder Bay Regional Research Institute and Thunder Bay Regional Health Sciences Centre. The new 16-channel Breast MRI technology by Sentinelle Medical will provide better screening and assessment options for women who are at a higher risk of developing breast cancer.

Unlike mammography which uses low dose x-rays to image the breast, the MRI uses powerful magnetic fields and radio waves to create images. For those with dense breast tissue and a family history of breast cancer, the Breast MRI may pick up a suspicious lesion. It also allows breast images to be taken at various angles and is highly sensitive to small abnormalities. For instance, a Breast MRI may detect if cancer has spread to muscle, bone, lymph nodes, and armpits or behind the breast bone.

Breast MRI, alongside mammogram and ultrasound, are the diagnostic imaging modalities that comprise a comprehensive breast imaging center. Breast MRI is a complimentary form of breast imaging that is used in conjunction with mammography and ultrasound. Over the past two decades, it has proven itself as a modality that has many roles, most notable enabling problem solving, mapping the extent of disease in the breast as well as detecting disease in the opposite breast. The use of Breast MRI and MRI guided



biopsies enable the best possible treatment plan to be formulated for the patient.

Dr. Neety Panu, lead radiologist at TBRHSC, is skilled in the interpretation of Breast MRI and MRI guided biopsies.

"The addition of Breast MRI to the Linda Buchan Center at the Thunder Bay Regional Health Sciences Centre is a huge and exciting step forward, providing the patients of Northwestern Ontario with a world-class comprehensive Breast Imaging Center," says Dr. Panu. "Equally noteworthy, we are poised to be leaders in the field of Breast MRI, with our industry partner Sentinelle Medical," she adds.

The technology has been purchased and Sentinelle Medical's Vanguard Breast MRI coil will be installed this August at Thunder Bay Regional Health Sciences Centre's Linda Buchan Centre. Instead of having to travel outside of Northwestern Ontario for a Breast MRI, patients will have access right here at home.

A \$185,000 grant from the Thunder Bay Regional Health Sciences Foundation supported the purchase of the breast MRI. The majority of the funds were raised by the Bearskin Airlines Hope Classic curling bonspiel donated to the Northern Cancer Fund.

"The standards of, and access to, patient care are improved with Breast MRI in Northwestern Ontario. If you have wives, mothers, sisters, daughters or friends facing breast cancer, you know how important that is," says Brian McKinnon, vice chair of the Health Sciences Foundation.

Patients at the Thunder Bay Regional Health Sciences Centre (TBRHSC) are now among a select few in Ontario who have access to world-class Breast MRI technology at the Thunder Bay Regional Research Institute (TBRII).

"The Breast MRI illustrates TBRII and TBRHSC's drive to deliver the best care possible to patients, and our ambition to partner with Sentinelle Medical, a world-class industry leader," says Michael Power, CEO of TBRII and Regional Vice President of Cancer and Diagnostic Services TBRSHC.

"This is the future of breast screening and assessment services at Thunder Bay Regional Health Sciences Centre's Linda Buchan Centre and the benefit is indisputable, improving early detection of breast cancer for women in our community."



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