

# **Nova Scotia Health Authority**

## **Research Annual Report 2015**



# Annual Report 2015

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## Point-of-care research It's all about the people

When people think of health research, the first images that pop into their minds might be test tubes and microscopes, perhaps white-coated scientists in goggles and gloves. Of course, laboratory scientists and the equipment they use are vital and essential parts of the health research equation—but so are ordinary people facing life-changing and life-threatening illnesses who are participants in research.

In this year's research report, you will meet people from all across Nova Scotia—and the Maritimes—who are helping us and our collaborators around the world answer critically important research questions. By taking part in clinical research studies, these patients are playing a role in improving future outcomes for people with cancer, diabetes, severe sepsis, organ failure, and neurodegenerative disease. They are giving generously of their health information, time and energy to do so, and we are grateful.

You will also meet some of our clinical researchers, who include physicians, research coordinators, clinical nurse specialists, implementation scientists and allied health professionals. These dedicated individuals devote countless hours to the pursuit of better care and better outcomes for patients. I am continually impressed by their commitment, resourcefulness and ingenuity.

For example, Dr. Lisa Barrett, a clinician scientist in the area of infectious diseases, worked tirelessly all year to plan and launch a hepatitis C immunity study that is the first drug-intervention study to take place in a Canadian correctional facility in 40 years. Meanwhile, Patricia Bilksi, a clinical nurse specialist in dementia care, worked with colleagues to design and test an educational program that's helping frontline care providers deliver more sensitive and effective services to seniors with dementia and delirium in acute care inpatient units. We hope to eventually roll this program out all across Nova Scotia.

In our first year of transition to a single health authority for adult health care services across Nova Scotia, Research Services has made significant strides in reaching out to our colleagues across the province to explore new research possibilities. Our new provincial scope offers tremendous opportunities for involving even more people in community-based research initiatives. I look forward to being involved in this evolution and sharing the results with you over time!

This year, we continued to engage with the public about health research, hosting our second annual Research and Innovation in Health Care Forum, *My Hope for Health Care*. This was an opportunity for a diverse group of researchers to share their vision for better care and better health in the future. And that, of course, is what research is all about.



Patrick McGrath OC, PhD, FRSC, FCAHS  
Integrated Vice President of Research, Innovation and Knowledge Translation  
Nova Scotia Health Authority and IWK Health Centre





Photo by Danique Rowsell

Lorraine Rawlins and her husband Kevin Crosby with two of the horses from their stables

It didn't take Lorraine Rawlins of Falmouth, N.S., long to decide to enroll her husband, Kevin Crosby, in an international trial of a new medication for reversing organ failure in severe sepsis.

"He was intubated, in a coma, with medication ports in his neck, arms and wrists," recalls Lorraine of Kevin's first day in the Intensive Care Unit at the Halifax Infirmary.

"Everything was happening so fast, it was hard to know what to do. The research coordinator carefully explained that, not only might the drug save Kevin's life, but being in the study would mean extra sets of eyes monitoring his care. My daughter and I quickly decided it was the right thing to do."

Kevin had developed sepsis in the aftermath of a terrible tragedy. On June 15, 2015, he and Lorraine were awakened in the night by a neighbour pounding on their door, shouting that their barn was on fire. Kevin—a long-time horse breeder, Grand Prix rider and riding coach, and co-owner of

Crosby Stables—ran out in his housecoat, intent on saving the eight horses that were stabled there that night. He was met with a toxic wall of smoke and flame and could only release one mare before he was forced to flee. He jumped on a tractor and drove it through a barn wall to free another mare and her foal, but by then he had burns on his face, head, hands and back and the barn was engulfed in flames.

"We lost five horses, including our breeding stallion and a pregnant mare that night," says Lorraine. "Thankfully most of our 30 horses were out in the pasture, but it was still a heartbreakingly loss and a major blow to our business."

Kevin cleaned his burns and applied a topical antibiotic, but one week after the fire Lorraine found him unresponsive. She called 911. The paramedics found his condition so poor, he was rushed to the Halifax Infirmary.

"We approached Kevin's family about the trial when he started developing coagulopathy, which is when the blood

clots abnormally in response to infection,” explains Lisa Julien, team lead and research coordinator with NSHA Critical Care Services. “The drug we were testing is designed to reverse coagulopathy to protect the organs from failure.”

It’s a challenge to approach families for consent to participate in research when they’re in crisis, but thanks to her calm, direct manner and years of experience, Lisa routinely secures the participation of 95 per cent of the families she talks to about enrolling in clinical trials. “It can take an hour or more to cover all of the necessary information,” she said. “I’ll meet with them several times, give them time to think, and answer all their questions to make sure they understand everything involved.”

“Lisa approaches people with confidence and sensitivity,” notes Dr. Rick Hall, an NSHA anesthesiologist and Dalhousie professor who’s been a Canadian leader in critical care research for 20 years. “The good people of Nova Scotia most often choose to take part in the research, in the worst moments of their lives, in hopes of helping their loved one but also because they understand the larger benefit to society.”

Thanks to research and steady improvements in care, sepsis death rates have dropped from 40 per cent to 26 per cent in the 20 years Dr. Hall’s been involved. “There are no new antibiotics and there will never be one magic bullet for

sepsis,” he says. “There will always need to be a combination of supportive therapies to keep people alive while we fight the infection.”

In Kevin’s case, a streptococcal infection in his bloodstream put him into septic shock, on the verge of multi-organ failure. After he developed blood clots and had emergency surgery to take out his failed and infected gallbladder, he had to be removed from the study. But, he had already received four of six doses of the study drug or placebo. “We feel he was most likely on the study drug and that’s why he’s alive,” says Lorraine. “We’re looking forward to finding out in a few months, when the trial is over.”

Lisa will continue to follow Kevin until his ordeal is a year in the past. He doesn’t remember running into the fire to save the horses, or his time in the hospital, but he was delighted to meet Lisa when she travelled to Crosby Stables to do his first post-discharge check-up. He now speaks with Lisa on the phone monthly, in keeping with the study protocol.

“I know I’m getting exceptional care from being part of this study,” Kevin says. “It’s been a very painful and difficult road, on a whole lot of levels, but we’re moving forward now. It’s great to have that ongoing support from Lisa along the way.”



Kevin Crosby (left) and Lorraine Rawlins (right), at a follow-up visit with research co-ordinator Lisa Julien (centre)

## Cancer clinical trials

### Real-world miracles: cancer patients going strong on trial medications

While there is unquestionably a long way to go before cancer can be cured across the board, in recent years there have been extraordinary advances, thanks to the new generation of targeted molecular therapies.

“There have been a number of breakthrough drugs in the past few years... the standard of care in oncology is changing very quickly,” says Dr. Lori Wood, staff medical oncologist at the QEII and professor at Dalhousie Medical School. “We are seeing long-term responses in patients with metastatic disease that we would never have seen just a few years ago.”

These breakthrough drugs are carefully designed molecules that each target a specific biological pathway in the immune system or the cancer itself. As a result of precision targeting, they are able to destroy cancers without inflicting a lot of collateral damage on other cells in the body—so significant side effects and long-term negative effects are less common.

Promising as they are, these therapies are not yet widely available. Many still need to be tested in clinical trials to gain Health Canada approval. Still others are approved but, due to their high cost, are not yet covered by provincial governments. That’s where clinical trials run by NSHA investigators through the Atlantic Cancer Clinical Research Unit (AC-CRU) and the Division of Hematology come in.

“Without clinical trials, our patients wouldn’t have access to the new molecular therapies. We work hard to ensure we’re running trials for virtually every kind of blood cancer, so every patient has the option to take part,” says Dr. Darrell White, staff hematologist at the QEII and senior associate dean at Dalhousie Medical School. “We’ve seen great advances... our goal is to turn what were once terminal illnesses into chronic diseases that can be managed with ongoing treatment.”

#### Blockhouse woman thriving 11 years after multiple myeloma diagnosis

Linda Kenney of Blockhouse, N.S., makes the trip to Halifax every two weeks with her husband, Gerry, to receive the targeted therapy that’s subduing her previously



Linda and Gerry Kenney strolling through the QEII grounds

aggressive multiple myeloma. “I’ve been in complete remission for six years,” says Linda, who joined an international clinical trial of elotuzumab through the Division of Hematology in 2009. “I was in remission after the second cycle of treatments—it’s a miracle, really.”

Linda and other patients who are surviving and thriving many years after a multiple myeloma diagnosis are true modern miracles. Just two decades ago, it was rare for people to survive this disease—the second-most-common blood cancer—more than three years. Linda, however, was diagnosed in 2004. After standard chemotherapy, an earlier trial medication and a bone marrow transplant failed to check the overgrowth of plasma cells in her bone marrow and bloodstream, she embarked on the clinical trial that’s been providing her lifesaving treatment ever since.

“The staff in the Medical Day Unit are like family by now,” Linda says. “I can call anytime with a question or problem, they are always there for me. They make it very easy to come in for treatment.”

## **Trial drug gives Wedgeport man his legs and his life**

In 2013, Raymond Boudreau of Wedgeport, N.S., was a very sick man. Two years had passed since he'd been diagnosed with metastatic kidney cancer and he was not doing well. He couldn't eat and suffered terribly from gastrointestinal side effects of chemotherapy.

"I was skin and bones and I couldn't walk," he recalls "The cancer was in my hip and my left leg was partially paralyzed." But just when he thought the end of his life might be near, his oncologist, Dr. Lori Wood, contacted him about a new clinical trial of a medication called nivolumab.

"Within a month, I was a new man," says Raymond of his remarkable response to the targeted therapy. "The chemo side effects went away, my energy and appetite came back

and, after a while, my hip and leg recovered and I could walk normally again."

Raymond will stay on the study drug as long as his cancer is not progressing. He has regular CT scans to measure the lesions throughout his body, which have shrunk to 10 per cent of their former size and, so far, show no signs of rebounding. Raymond is living life to the fullest with his wife, children and grandchildren.

"The only way Mr. Boudreau could have accessed this medication was through this clinical trial," says Lorrie Yunace, RN, team lead for ACCRU. "I see him once a month when he comes in for treatment and it's just amazing to see how well he is doing two years in—so far, so good, his disease is not progressing."



Since Raymond Boudreau has been enrolled in the nivolumab clinical trial, his wife Elizabeth has noticed he now feels so well he is back to enjoying his woodworking hobby



**Karen and  
Darrell Karnes  
with an equine  
friend**

**Last-minute entry into global trial stops metastatic throat cancer in its tracks**

Darrell Karnes was lucky to get in under the wire on the last day a clinical trial for the targeted therapy, panitumumab, was accepting participants. “I’d been diagnosed with metastatic throat cancer and had completed radiation,” says Darrell, who is beyond grateful for the intense efforts of NSHA staff to get him signed on to the trial. “I didn’t do well on the chemotherapy that followed and there weren’t many options.”

That was in 2009. Darrell has made the two-hour drive from Bridgetown to Halifax every three weeks for the treatment, ever since, in addition to regular trips to Kentville for CT scans to monitor his much-shrunken lesions. “They make me feel really at home,” he says of the staff in both locations. “I’m feeling good—the only side effect is a bit of an itchy rash and I have to get to bed early.”

“It’s gratifying to see Mr. Karnes doing so well on this therapy,” says Kara Bursey, RN, the ACCRU research coordinator who oversees Darrell’s participation in the trial. “At the same time, the drug company is learning so much about the long-term effectiveness and effects of this medication, which is such valuable information for clinicians all around the world.”

**Strength in numbers:  
Cancer clinical trials add up to save and extend lives.**

**Division of Hematology**

—More than 50 trials open, involving 224 patients and approximately \$2.4 million in outside funding this year

**Atlantic Cancer Clinical Research Unit (ACCRU)**

—50 to 60 trials ongoing, involving 280 patients and \$1.4 milion in outside funding this year

Clinical trials are providing patients with lifesaving medications and improving the quality of their lives, while supporting meaningful employment for research coordinators and other research staff.

Four years after she was diagnosed with multiple sclerosis, Karen Cole of Hammonds Plains, Nova Scotia, had a serious relapse.

"My left arm and leg were paralyzed and my speech was slurred," says Karen of the symptoms that landed her in the Nova Scotia Rehabilitation Centre for two months in 2012. "I couldn't walk at first. After a lot of physiotherapy, I could walk a bit, so I started going home on weekends, which helped a lot."

Karen had been doing well on an interferon MS treatment. After her disabling relapse, her physician, NSHA neurologist Dr. Virender Bhan, suggested she take part in a study of a newer medication, natalizumab (Tysabri). This targeted infusion therapy stops activated white blood cells from entering the central nervous system, reducing the inflammation and demyelination that injure nerves in the brain and spinal cord in MS.

"Before 2007, we had limited options for MS patients who didn't do well on 'first-line therapies' like interferons and glatiramer acetate," says Dr. Bhan, lead investigator in the Dalhousie MS Research Unit, which provides seamlessly integrated clinical care and research. "Tysabri is an enormous breakthrough—for the first time, we have an agent that effectively prevents further relapses, the progression of disability, and accumulation of new lesions. Most MS patients stabilize or even improve on this drug."

For Karen, a project administrator with a Bedford construction firm, the treatment has been a godsend: "I can walk, drive, go to work, do my hobbies, play with my dogs. I still

have some problems with my left side and my speech slurs when I'm tired, but I have my life back."

Along with immense benefits, Tysabri brings risks. "Because it interferes with immune surveillance of the brain, this drug can lead to an opportunistic viral brain infection called PML, or progressive multifocal leukoencephalopathy," says Dr. Bhan. "This can be disabling or even fatal."

"It's about balancing benefits and risks," says nurse practitioner Trudy Campbell, manager of the MS Research Unit. "We want to reduce the risk of further MS disability without overly increasing the risk of serious complications." Careful monitoring is the key to managing risk. For Karen, this means three MRIs, two rounds of bloodwork, and two thorough checkups at the MS Research Unit each year, in addition to her monthly Tysabri infusions.

Thanks to patients like Karen who agree to take part in studies through the MS Research Unit, clinicians are learning more about MS every day. "We follow most people with MS in Nova Scotia and we've been doing this for more than 35 years," notes Trudy. "We've contributed a lot to the understanding of MS—risk factors, incidence and outcomes, treatments and their side effects, disabilities and co-morbidities. We have so much more valid information with which to empower our patients."

"I'm happy to be part of the research," says Karen. "It doesn't take any extra time or effort on my part, Trudy and her team make it easy. It has benefitted me personally and I'm sure will help others as well."



Trudy Campbell (left),  
Karen Cole (centre) and  
Dr. Virender Bhan (right)

## Transplant research

### A new lease on life: New Brunswick man thriving after kidney transplant

One year after receiving a kidney transplant at the QEII Health Sciences Centre, Jason Barnaby of Burnt Church, N.B., feels great. “I am doing fantastic,” says Jason, a busy entrepreneur who fishes and runs rental properties and a school bus business. “I have my energy back and, now that I don’t have to make the round trip to Bathurst three times a week for dialysis anymore, I have my life back too.”

Jason is still doing some travelling, though. For pleasure, he’s taken his family to Niagara Falls and his wife on a Caribbean cruise. As a participant in a clinical trial of a medication that may kick-start kidney function after transplant, he makes the five-hour drive to Halifax every three months for a detailed check-up. He will continue to do so until 2017.

“I don’t know if I got the placebo or the study medication, because the study is blinded, but my new kidney started working right away,” Jason says. “I won’t know for sure until the study is over, but I do know that I’m getting exceptional care by being involved. The people are so professional and compassionate, they’re genuinely concerned. It feels very special.”

Dr. Kenneth West, head of the Division of Nephrology, is leading NSHA’s participation in this international trial—

one of many transplant-related studies underway through the health authority. As he explains, the study drug is already used to protect the kidneys from damage caused by a rare immune disorder. The researchers hope it may also protect donor kidneys from damage that occurs during the transplant process.

“The study is testing the drug’s ability to protect the kidneys and get them going after transplant, to avoid what’s known as ‘delayed graft function,’” notes Laura Sills, the clinical trials coordinator at the QEII who sees Jason for his regular checkups. “This would reduce the risk of the organ failing and extend its functional life.”

So far, Jason shows every sign of a remarkable recovery from severe kidney failure. “It’s a pleasure to see how well he’s doing,” Laura says. “It is a huge commitment on his part, to make the frequent trips to Halifax, year round, in all kinds of weather. We’re grateful he’s so willing to put in the effort.”

“I like to drive and I have family in Truro I visit on my way,” he says. “It’s worth it—it’s a way I can give back in return for the great care I’ve received in Halifax and the dialysis unit in Bathurst. I hope my participation in research will help others in the future.”



Clinical trial coordinator Laura Sills, RN, with kidney transplant recipient Jason Barnaby

## Infectious diseases research

### Attacking a virus in its stronghold: clinical trial treats hepatitis C in PEI correctional centre

Most clinical trials are administered through hospitals, but this doesn't always meet the most pressing needs. This is particularly true in the case of hepatitis C, an infectious disease that disproportionately affects offenders at correctional facilities.

"Less than one per cent of the general population is infected with hepatitis C, but the infection rate soars to 23 per cent in correctional facilities in Canada," says Dr. Lisa Barrett, a clinician scientist in the Division of Infectious Diseases at the Nova Scotia Health Authority and Dalhousie Medical School. "To eliminate hepatitis C, we must treat people in correctional settings."

As Dr. Barrett explains, Health Canada approved a new generation of oral medications for hepatitis C at the end of 2014. Known as direct-acting antiviral agents, the new drugs are easy to administer, have proven cure rates of 90 to 97 per cent, and few side effects.

Prince Edward Island was the first province to fund the new direct-acting antivirals and embark on a concerted effort to treat hepatitis C in the community. "We knew we could make a real impact on the virus in PEI if we could treat offenders as well," says Dr. Barrett. "So we approached the PEI government and planned a clinical trial with offenders in the Prince Edward Island Provincial Correctional Centre."

Beyond providing effective treatment to roughly 60 consenting offenders who test positive for genotype 1 hepatitis C, this study will help Dr. Barrett and her team assess the feasibility of treating hepatitis C in correctional settings. It will also shed light on the new drugs' potential to protect against re-infection—a crucial consideration given the lack of a hepatitis C vaccine.

The Nova Scotia Health Authority is leading the PEI study, with a view to launching a multi-site study in correctional facilities across the region once the new drug is funded in all four Atlantic Provinces.

"We are grateful to the PEI Department of Justice and Public Safety for making it possible for us to launch a pilot



Dr. Lisa Barrett

study on the Island," says Dr. Patrick McGrath, Integrated Vice President of Research, Innovation and Knowledge Translation for the Nova Scotia Health Authority and IWK Health Centre. "This is an important first step in addressing hepatitis C not only in correctional settings but in the broader community."

AbbVie Canada, manufacturer of the medication being used in the study, is providing funds for this ground-breaking research—one of the first drug intervention studies to take place in a Canadian correctional facility in 40 years.



Research coordinator Tabitha Palmer checking Roger Gaudet's weight during one of his clinic visits

Roger Gaudet of Sackville, N.S., has been involved in clinical trials and long-term outcome studies of diabetes treatments for over 15 years. "I'd been trying to control my blood sugar with diet and exercise for six years, but I was struggling," he says. "So I decided to go ahead with insulin through a five-year trial."

Like many people with diabetes, Roger was—and is—concerned about the eventual effects of the disease on his eyes, kidneys and limbs. Enrolling in clinical trials has provided him with an extra level of insight and care he has found reassuring over the years.

"In addition to occasional visits to my family doctor, I see a specialist for whatever study I'm enrolled in," notes Roger.

"On top of that, I see the research coordinator, Tabitha Palmer, frequently and can call her anytime with questions. The great thing about that is, she is a clinical dietitian and certified diabetes educator, so she helps me with diet advice."

In some people, diabetes gradually damages the retina, so all people with diabetes should have yearly eye exams. Roger has his eyes monitored for changes at the QEII Eye Care Clinic, which started with a now-completed study examining how treating type 2 diabetes with insulin may moderate the development of diabetic retinopathy over time. "They've detected some damage, but it has not advanced, so that's encouraging," he says. "I get my eyes checked once a year, so we'll have lots of warning if anything changes."

Roger has his feet tested regularly for diabetic nerve damage—there is some, but not enough to cause concern. And, his kidneys may benefit from the study he's currently enrolled in, an international clinical trial involving 3,900 patients at 480 sites, being conducted at NSHA by endocrinologist Dr. Tom Ransom. "The study drug has proven to be effective at lowering blood-sugar levels by helping the kidneys release more sugar," says Dr. Ransom. "Now the company is assessing the potential long-term effects of this medication on kidney protection."

According to Tabitha Palmer, Roger is an exceptional research participant. "He has always been keen to get involved in studies," she says. "It's a big commitment of time. Follow-up visits last anywhere from one to three

hours, and we require patients to test and record their blood sugar for us every day. Roger has always been willing to do whatever legwork a study requires."

Roger does his own legwork, too. When he was first diagnosed with diabetes in the mid-1990s, he started walking—miles a day, sometimes, around Halifax. Now that he's retired from his job as a senior manager of global risk for the Bank of Nova Scotia's Atlantic Region, he walks 30 minutes a day on a treadmill.

"I do everything I can to manage my diabetes and I've learned so much about proper management by taking part in research," Roger says. "I enjoy going in for my study visits and talking to the staff. They're so enthusiastic and helpful, I get lots of support and great care."

## Implementation science

### How-to know-how: a research approach to staff training yields practical results

As a clinical nurse specialist (CNS) in dementia care, Patricia Bilski knew she had a lot of knowledge to share with nurses and other providers struggling to look after elderly patients with dementia in acute care units throughout NSHA. When NSHA's executive director of learning and professional practice, Mary Ellen Gurnham, asked her to lead a training initiative in this challenging area of practice, she felt she should draw on the research expertise of others to ensure the project's success.

"I knew the geriatric staff training initiative would have a greater impact if we launched it as a research project," says Patricia, who has worked at the Camp Hill Veterans' Memorial Building in Halifax as a CNS for 12 years. "That way, we could design a more effective program that would allow us to better translate the learning into practice."

As Patricia explains, acute care units are not usually designed with the needs of geriatric patients with dementia or delirium in mind. "Medical and surgical units tend to be very busy places with a lot going on," she says. "This kind of environment can be very confusing for people with dementia or delirium."

At the same time, staff in these units are trained to provide efficient, medically focused care to a lot of patients with high needs. But such efficiency can present problems when attempting to provide care to a person with dementia.

"These patients may not understand the care provider's intent and may resist the care, whether it's someone trying to get them to take their medication, turn them over, or bathe them," Patricia says. "This can be very frustrating for staff, particularly if they don't understand the reasons behind the behaviours and don't have the specialized knowledge and skills to manage them."

Mary Ellen pulled together a multidisciplinary advisory group—including Dr. Robin Urquhart, an NSHA/Dalhousie researcher with specific expertise in knowledge translation and implementation science—to help Patricia develop and test a training initiative that would better equip acute care staff to look after cognitively impaired patients.

"We started by asking staff members what, how and when they would like to learn, right down to time of day and how long they would like any sessions to be," notes Robin. "They overwhelmingly chose small-group, interactive sessions over online modules."

Patricia and Robin used the staff input to design an educational intervention, which they conducted with 18 staff members in April. Two months later, they went back to participants to see if the training had helped.

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Patricia Bilski and Dr. Robin Urquhart work together to develop health care staff training that meets the needs of dementia patients in acute care units

"Feedback was positive across the board," Patricia says. "Participants felt energized by the opportunity to share their experiences with their colleagues and learn how to assess these patients and write and share care plans that reflect the reasons underlying their behaviours and the appropriate interventions, rather than relying on medications."

As one participant noted in the evaluation, "Afterwards, I just found my approach with patients to be a little bit different ... just not so aggressive coming into the room and just a little more gentle and quiet instead of quickly waking people up. I was just more aware that people respond differently to different things."

Another reported that, "I'm very consistent now with checking for incontinence. That was a big thing, just wondering why they're yelling out and trying to deter that now as much as I can naturally."

Patricia and Robin have refined the education intervention based on participants' feedback. Patricia will begin running it for staff in other acute care units throughout NSHA in 2016.

### NSHA's Educating Health Care Professionals on Frailty Group

- Patricia Bilski, clinical nurse specialist, Veterans' Services
- Dr. Susan Bowles, clinical coordinator, Pharmacy Services
- Helen Cameron, quality and patient safety leader
- Lisa Covey, clinical nurse educator
- Janet Gallant, program manager, research education
- Mary Ellen Gurnham, executive director, Professional Practice, Learning and Development
- Lori Jessome-Croteau, faculty member, RN Professional Development Centre
- Catherine-Anny Murray, occupational therapist
- Dr. Robin Urquhart, assistant professor

**The QEII Foundation is a long-term supporter of research at the QEII. This fall, in addition to the inauguration of the QEII Foundation Endowed Chair in Arthroplasty Outcomes, the QEII Foundation and supporters celebrated that nearly \$1.4-million has been contributed to QEII research since the first Charm Diamond Centres Night of Discovery gala in 2012.**



Photo courtesy QEII Foundation

Arthroplasty outcomes chair, Dr. Michael Dunbar, with hip-replacement recipient, Candy Palmater

Candy Palmater remembers the day she couldn't fight the pain any longer. "I was alone in a hotel room and I couldn't put on my own nylons," says Candy who, at the age of 40, was forced to face the truth: she needed a hip replacement. "I suffered with arthritis pain for years, until it took my independence from me. I could no longer drive or sit through a movie," recalls Candy, who was just launching a career in entertainment at the time.

Candy was referred to Dr. Michael Dunbar, an orthopaedic surgeon at the QEII Health Sciences Centre. Dr. Dunbar was confident he could get Candy back on her feet, living a life free of pain. "Dr. Dunbar performed my hip replacement and gave me my life back," says Candy.

Recently, Candy shared her inspiring story at an announcement that is welcome news to Atlantic Canadians who will benefit from further research into the complicated area of orthopaedics: Dr. Dunbar was named the inaugural QEII Foundation Endowed Chair in Arthroplasty Outcomes.

In addition to his role as an orthopaedic surgeon, Dr. Dunbar is a professor at Dalhousie University in the departments of Surgery and Community Health and Epidemiology, and the School of Biomedical Engineering. His research focuses on improving delivery of care and out-

comes for arthroplasty patients, giving them timely access to care and better quality of life.

The QEII is a major orthopaedic centre in Atlantic Canada, seeing almost 6,600 patients each year for orthopaedic surgery—1,200 of whom receive hip and knee replacements. Research chairs help transform scientific thinking and have a direct impact on patient care locally and around the world.

The QEII Foundation Endowed Chair in Arthroplasty Outcomes was made possible through QEII Foundation donors, funding partners BMO Financial Group, and the QEII Health Sciences Centre Division of Orthopaedic Surgery.

Hip and knee replacements change lives. They relieve pain, restore physical function and greatly improve quality of life. Since her surgery, Candy's career has skyrocketed, something she says wouldn't have been possible without her hip replacement surgery at the QEII under Dr. Dunbar's skillful care.

"I am hopeful that research will continue to advance so others living under the oppression of extreme pain can experience the liberation that joint replacement surgery can bring," says Candy.

# Nova Scotia Health Authority Research Ethics Board

## Embracing change

The Nova Scotia Health Authority Research Ethics Board has moved forward with several significant changes over the past few years. Here is what has happened:

### 2009

- inaugural meeting of the Ethics Board  
Harmonization group comprised of members from Capital Health, the nine health authorities throughout the province and the IWK Health Centre

### 2011 (November)

- concept of a multi-site board approved in principle and standard operating procedures, terms of reference and an appeals mechanism developed

### 2014 (January)

- Council of District Health Authorities CEOs signed a Memorandum of Understanding for the Nova Scotia District

### 2014 (August)

- first meeting of the Multi-site Research Board takes place

### 2015 (April 1)

- amalgamation of the nine health authorities into one adult health authority: the Nova Scotia Health Authority (NSHA)

The NSHA Research Ethics Board is now reviewing submissions from the entire province. The board has members from the medical community, legal community and the public. All members are volunteers who give freely of their time. The NSHA Research Ethics Board meets once a week.

To make the workload manageable for the 109-member board, reviews are spread among its members and seven co-chairs. Members are assigned reviews and attend meetings on a rotating basis.

Technology has made many improvements possible for the NSHA Research Ethics Board. Now submissions are received electronically through a researcher portal. Members can join meetings remotely through videoconferencing.



NSHA Research Ethics Board volunteer members Greta Murtagh (left), Larry Thomas (centre) and Arlene Valère (right) at a Research Ethics Board Advance in October 2015

Research Ethics Board members from throughout Nova Scotia in Halifax in the fall of 2015: (left to right) Lissa Lynch, Northern Zone; Paul MacInnis, Eastern Zone; Cheryl Smith, Northern Zone; Matthew Murphy, Eastern Zone; Melissa Ross, Eastern Zone

# Research and Innovation in Health Care

## Reaching out to the community

Engaging Nova Scotians in a local discussion that inspires action to improve their health care is the purpose of the annual Research and Innovation in Health Care forum series. The series is attracting attention from across the province, with on-site audiences, live streams and website videos.

### Now or Never: Innovation in Health Care

The First Annual Research and Innovation in Health Care Forum was held in September 2014. Speaker Dr. Danielle Martin, a family physician and Vice President Medical Affairs and Health System Solutions at Women's College Hospital in Toronto, is known for defending Canada's health care system before a U.S. Senate committee. She shared three ideas for improving the Canadian health care system:

- 20 drugs to save a nation—choosing 20 drugs that are commonly used to control chronic diseases like asthma, diabetes and high blood pressure and agreeing nationally to offer universal public coverage for these medications
- choosing wisely—reducing inappropriate, unhelpful, wasteful and harmful medical tests, interventions and prescriptions
- reducing poverty through a guaranteed annual income to bring all Canadians up to a decent standard of living.



Dr. Danielle Martin

### My Hope for Health Care

The second Research and Innovation in Health Care Forum took place in October 2015. Ten Nova Scotian researchers and innovators shared their hopes for improving health care and how research can help to get us there. Presenters used the innovative Pecha Kucha presentation format—20 slides and 20 seconds per slide for fast-paced presentations.

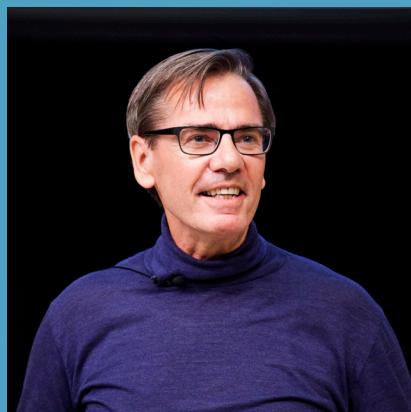
Speakers who shared their ideas included:

- Dr. Stacy Ackroyd, Department of Emergency Medicine, QEII Health Sciences Centre
- Dr. Steven Beyea, BIOTIC (Biomedical Translation-al Imaging Centre), QEII and IWK Health Centre
- Dr. Lee Kirby, Nova Scotia Rehabilitation Centre
- Gerry Post, community advocate for people with disabilities, in collaboration with the Nova Scotia Rehabilitation Centre
- Dr. Robin Urquhart, Cancer Outcomes Research Program, QEII Health Sciences Centre
- Dr. Brett Taylor and Dr. Marsha Campbell Yeo, IWK Health Centre
- Dr. Andrea Murphy, College of Pharmacy, Dalhousie University
- Dr. Jonathon Fowles, Kinesiology, Acadia University
- Glen Hougan, Nova Scotia College of Art and Design

The NSHA/IWK Office of Research Development, QEII Foundation, IWK Foundation, IWK Health Centre and Halifax Public Libraries came together to sponsor the 2015 Research and Innovation in Health Care Forum.

### Crusading for Access to Technology for People with Disabilities

At the *My Hope for Health Care* forum, Gerry Post shared his vision of technology's power to transform the lives of people with disabilities. A former rehab patient turned community advocate, Gerry saw firsthand during his stay at the Nova Scotia Rehabilitation Centre how lack of access to technology left many people disconnected, with no means of reaching out to fulfill social and practical needs. This eye-opening experience inspired him to create the Independent Access to Technology (iAT) research initiative, which aims to provide affordable iAT bundles to people with disabilities to enhance their independence and quality of life.



Gerry Post

## Nova Scotia Health Authority Research Fund (NSHARF) Awards

The NSHARF stimulates and supports original research at NSHA. It supports the NSHA mission of putting patients first and achieving excellence in care through constant improvement and commitment to patient safety and quality care.

### March 2015 Capital Health Research Fund Award Recipients

Name	Department	Award	Research Description
Rob Adamson	Surgery/ENT, QEII	\$15,000	Optical coherence tomography imaging of the middle ear: preliminary clinical trials
Sean Barrett	Psychology and Neuroscience, QEII	\$15,000	Physiological and neural responses to smoking-salient stimuli in currently dependent smokers and non-dependent occasional smokers
Jeremy Brown	Surgery/ENT, QEII	\$14,974	A variable sampling receive beamformer for high-resolution ultrasound endoscopy
Sidney Croul	Anatomic Pathology, QEII	\$13,181	Natural history of glioblastoma
Alexander Easton	Anatomic Pathology, QEII	\$15,000	Uncovering new biomarkers in Alzheimer's Disease
Kristen Higgins	Psychology and Neuroscience, QEII	\$4,936	Risk and resilience in children of parents with chronic pain
Matthias Schmidt	Radiology/Neuroradiology, QEII	\$3,751	Exploring potential neuroimaging biomarkers of epileptogenesis in a prospective cohort of patients with first-seizure and new-onset epilepsy
Michael Schmidt	Anesthesia, QEII	\$14,744	Is it feasible to evaluate cognitive changes after surgery with computerized neuropsychological assessment in patients aged 55 or older undergoing major surgery?
Mark Seamone	Ophthalmology, QEII	\$4,876	Expression of IL-1 $\beta$ in vitrectomy samples obtained from individuals with exogenous endophthalmitis
Namita Sinha	Anatomic Pathology	\$5,000	Colonic mixed adenoneuroendocrine carcinomas: analysis of genome-wide copy number aberrations

### September 2015 Nova Scotia Health Authority Research Fund Award Recipients

Ian Alwayn	Surgery/General Surgery, QEII	\$15,000	The role of preformed and de novo donor specific antibodies in liver transplantation
Manohar Bance	Surgery/Otolaryngology-Head and Neck Surgery, QEII	\$14,484	Understanding the relationship between decisional conflict and shared decision making in patients with acoustic neuromas considering surgical vs non-surgical management
Paul Bonnar	Internal Medicine/Infectious Diseases, QEII	\$4,804	The microbiota changes in fecal microbiota therapy for recurrent clostridium difficile infection
Vishva Danthurebandara	Ophthalmology and Visual Sciences, QEII	\$4,100	A comparative cost-effectiveness analysis of following patients with glaucoma
Dan Gaston	Pathology and Laboratory Medicine/Hematopathology, QEII	\$14,360	Next-generation sequencing-based transcriptional profiling of MAP3K6 mutation-positive familial gastric cancer
Todd Hatchette	Pathology and Laboratory Medicine/ Microbiology, QEII	\$15,000	Development of a multi-biomarker serological test for Lyme Disease
Jill Hayden	Community Health and Epidemiology, QEII	\$14,979	The Low Back Pain Emergency: Patient and staff perspectives on why people present to the emergency room with non-specific low back pain
Jong Sung Kim	Community Health and Epidemiology, QEII	\$15,000	Investigating the role of nanoparticles in exacerbation of pre-existing respiratory diseases
Kwesi Kwofie	Anesthesia, Pain Management and Perioperative Medicine, QEII	\$14,244	Incidence of subepineurial injection with ultrasound-guided supraclavicular brachial plexus block in cadavers
Madelaine Plourde	Surgery/Thoracic Surgery, QEII	\$14,982	Digital air-leak monitoring for patients undergoing lung resection: a randomized controlled clinical trial

## **Translating Research into Care (TRIC) Awards**

The QEII Foundation established the TRIC health care improvement grants in 2013 to foster research aimed at translating clinical science into improved service delivery and patient care at the QEII Health Sciences Centre (QEII). The program offers three levels of funding support for research that will immediately benefit patient care. All TRIC grants are co-led by a research scientist and a health centre administrator. The research costs associated with the grant are covered by the TRIC funding award. Operational costs associated with the grant come from within current health centre budgets to ensure that the change is sustainable. Funding support for TRIC grants at the QEII Health Sciences Centre is provided by the QEII Foundation.

### **November 2014 QEII Foundation TRIC Grants Award Recipients**

#### **\$3,000 — Development of a research project to examine the relationship between TAVI and frailty using PACER**

- Dr. Paige Moorhouse, PATH Co-Founder, Physician, Dept. of Medicine, QEII Health Sciences Centre (QEII)
- Paula Bond, Vice-President, Integrated Health Services Program Care 1, QEII

#### **\$3,000 — Sustaining clinical gains for young adults with psychosis, transitioning from specialized to community mental health care**

- Dr. Philip Tibbo, Director, Nova Scotia Early Psychosis Program (NSEPP), QEII
- Dr. David Pilon, Program Leader, Specialty Mental Health Services, QEII

#### **\$3,000 — Optimizing the service-delivery process of manual wheelchairs: a needs assessment**

- Dr. R. Lee Kirby, Clinician Scientist, Nova Scotia Rehabilitation Centre, QEII
- James Adderson, Program Manager, Rehabilitation and Supportive Care, QEII

#### **\$68,780 — Validating the use of an industrial engineering model of patient flow through physiotherapy**

- Dr. Michael Dunbar, Orthopaedic Surgeon, QEII
- Randi Monroe, Director, Rehabilitation and Supportive Care, QEII

#### **\$76,725 — Beyond talking the talk: integration of health behaviour change interventions into primary care settings**

- Dr. Michael Vallis, Psychologist and Lead, Behaviour Change Institute, QEII
- Dr. Tara Sampalli, Assistant Director of Research, Primary Health Care and Manager BCI, ICCS and Diabetes Management Centres, QEII

### **May 2015 QEII Foundation TRIC Grants Award Recipients**

#### **\$2,904 — FLO on Flow: Front line ownership of emergency department, hospital, and health-system patient flow—a novel approach to emergency-department overcrowding**

- Dr. David A Petrie, Chief, Central Zone Network of Emergency Departments, and Trauma Team Leader, Charles V. Keating Emergency & Trauma Centre, QEII
- Karen Mumford, CHE Senior Director, QEII Clinical Operations

#### **\$2,995 — Non-pharmacological management of depression in dialysis patients, a scoping review**

- Dr. S. Neil Finkle, Medical Director, Peritoneal Dialysis Program, Central Zone, NSHA and Provincial Dialysis Programs, NS-PEI
- Cynthia Stockman, Health Services Manager, Outpatient Nephrology, Central Zone, NSHA

#### **\$3,000 — An uncommon approach to a common problem: low back pain in the emergency department**

- Dr. Jill Hayden Affiliate Scientist, Central Zone, NSHA
- Dr. Samuel Campbell, Chief, Department of Emergency Medicine, Charles V. Keating Emergency & Trauma Centre, Medical Director of Triage, Interfacility Transport and in-House Paramedics, Central Zone, NSHA

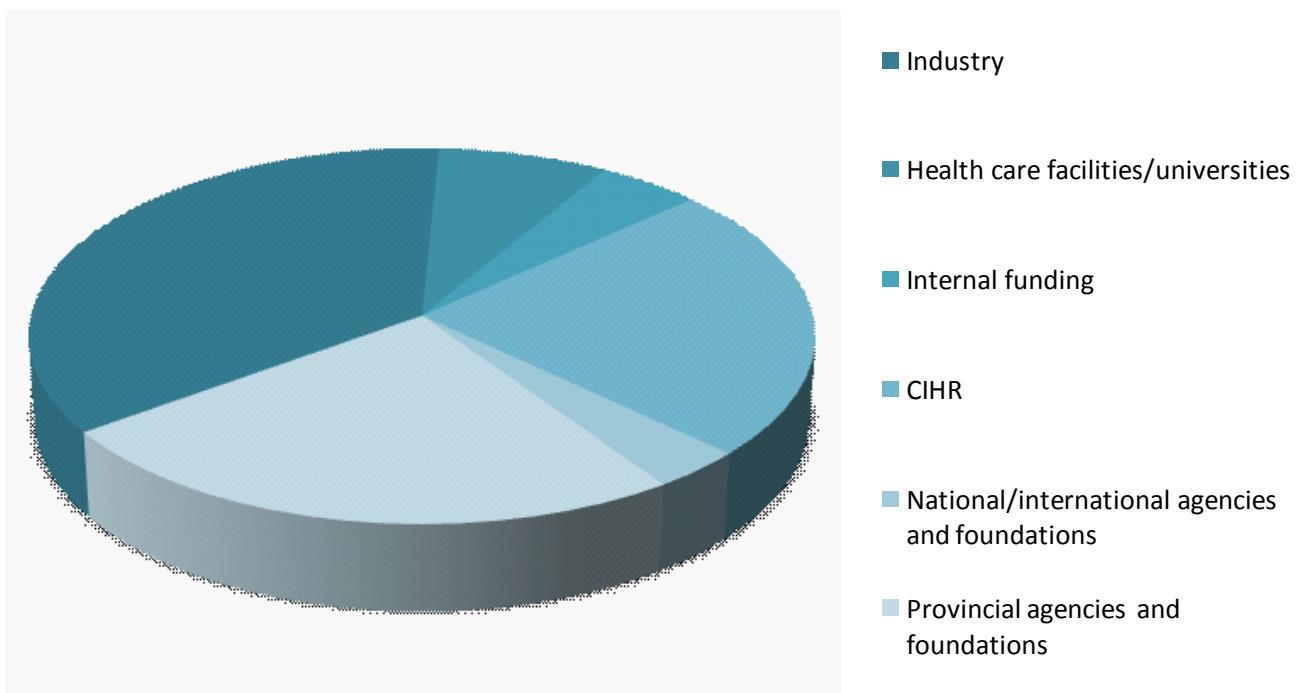
#### **\$29,346 — Feasibility and effectiveness study of implementing prism adaptation as a treatment for spatial neglect after right-hemisphere stroke**

- Dr. Gail Eskes, Staff Psychologist, QEII
- Dr. Richard Braha, Program Manager, Acquired Brain Injury Program (ABI), Central Zone, NSHA

## Awards for Research Conducted at Capital Health (now Central Zone, NSHA) for 2014-2015 Fiscal Year

	<b>Administered at Capital Health</b>	<b>Administered at Dalhousie University</b>
<b>Research Grants</b>	\$ 16,629,744.52	\$ 3,272,930.91
<b>Research Contracts</b>	\$ 7,378,787.55	\$ 638,735.74
Total	<b>\$ 24,008,532.07</b>	<b>\$ 3,911,666.65</b>
<b>Total: \$27,920,198.72</b>		

### Source of Research Awards for 2014-2015 for Research Conducted at Capital Health



## Capital Health Research: All Research Accounts

### Statement of Revenue and Expenses

April 1, 2014, to March 31, 2015

<b>Opening Balance April 1, 2014</b>	<b>\$</b>	<b>31,287,567</b>
<b>Revenue</b>		
Grants*		14,929,594
Contracts*		6,900,378
Interest and Realized Gain on Investments		892,196
Federal Indirect Costs Program		719,389
Other Revenue		426,142
Ethics Review Fee		273,226
RMU Consulting Fee		85,100
Record Retention Fee		58,840
<b>Gross Revenue</b>	<b>\$</b>	<b>24,284,864</b>
<b>Expenses</b>		
<b>Compensation</b>		<b>12,998,215</b>
<b>Supplies and Services Expenses</b>		
Equipment**		3,651,775
Transfers Offsite		1,974,513
Purchased Services/Professional Fees		1,231,979
Other Expenses		772,216
Overhead to Dalhousie		560,322
Travel/Professional Development		524,010
Clinical Laboratory Services		496,891
Maintenance		354,368
Pharmacy Services and Drugs		341,152
Diagnostic Imaging Services		330,608
Printing/Office and Computer Supplies		327,574
Travel-Patient		319,103
Medical/Surgical Supplies		152,447
Communications		34,532
Recoveries of Expenses***		(407,725)
		<b>10,663,763</b>
<b>Total Expenses</b>	<b>\$</b>	<b>23,661,979</b>
<b>Net Inflow/Outflow</b>		<b>622,885</b>
<b>Unrealized Gain (Loss) on Investments</b>		<b>1,588,621</b>
<b>Ending Balance March 31, 2015</b>	<b>\$</b>	<b>33,499,073</b>
<b>Overhead Distribution</b>		
Capital Health Research Services		942,929
Capital Health Research Development		191,159
University Departments		336,404
Faculty of Medicine, Dalhousie University		223,918
<b>Total Overhead</b>		<b>1,694,410</b>

\* Includes overhead

\*\* Includes the purchase of the 3 Tesla MRI

\*\*\* Recoveries allocated to appropriate grant/contract; balance attributed to hospital department recoveries

## **Research Staff, Ethics Board and Research Fund Committee**

Patrick McGrath, OC, PhD, FRSC, FCAHS

Integrated Vice President of Research, Innovation and Knowledge Translation

Nova Scotia Health Authority and IWK Health Centre

Tina Munroe, Executive Assistant

### **Research Services**

Lisa Underwood, Director

Michelle Roden, Administrative Assistant

Alicia Benton, Coordinator, Contract Facilitation and Support

Julia Enikeeva, Program Manager, Research Quality

Janet Gallant, Program Manager, Research Education

Jayne Sierens, Coordinator, Institutional Awards

Stacey Pyke, Administrative Coordinator, Contracts and Grants

Judith Thompson, Human Resources Manager

Jennifer Thurlow, Coordinator, Grant Facilitation and Support

Emily Walker, Communications Coordinator

### **Research Financial Services**

Denise Hatchette, Manager, Research Funds and Infrastructure

Hawley Dowe, Finance Officer, Research

Jane MacLeod, Financial Analyst, Research

Yvette Theriault, Finance Officer, Research

### **Research Development and Planning**

Sandra Crowell, Program Leader, Research Development

Elaine Strohm, Administrative Assistant

### **Research Ethics Board**

Ken Jenkins, Manager

Nadine Gillam, Administrative Coordinator

Starla Burns, Ethics Coordinator

Moira Fisher, Ethics Coordinator

Amanda Hennebery, Ethics Coordinator

Joan Morrison, Ethics Coordinator

Pamela Trenholm, Ethics Coordinator

#### Research Ethics Board Executive:

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Larry Broadfield, Co-Chair

Dr. Harry Henteleff, Co-Chair

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Dr. Chris MacKnight, Co-Chair

Dr. Shelly McNeil, Co-Chair

Gredi Patrick, Co-Chair

Dylana Arsenault, Zone 1 Executive Representative

Dawn Fougere, Zone 2 Executive Representative

Matthew Murphy, Zone 3 Executive Representative

### **Research Fund Committee**

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Dr. Gordon Gubitz, Co-Chair

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Dr. Lisa Barrett

Dr. Steven Beyea

Dr. Sharon Clarke

Dr. Jeremy Brown

Dr. Heather Butler

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Kate MacWilliams

Dr. Emily Marshall

Dr. Paige Moorhouse

Heather Neville

Dr. Jennifer Payne

Dr. Jai Shankar

Amanda Tinning

Dr. Ivan Wong

In addition to the NSHA Research Ethics Board executive and office staff, the board has 109 volunteer members. These members are drawn from the community, the legal profession, medical staff and hospital employees.



Nova Scotia Health Authority Research Annual Report 2015

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