

# Research in Progress

Volume 10, Issue 1

Celebrating  
10 Volumes!

## NSHA Research Celebrates Success!

Welcome to issue 1 of the 10th volume of *Research in Progress*. In April of 2008, the first issue was published as part of an initiative by NSHA Research Services to raise awareness of local research and facilitate the exchange of knowledge among researchers. Our newsletter regularly includes a listing of available funding and education opportunities, congratulations to award winners, researcher profiles and information about services available for researchers and staff. Our issues are available in print and our back issues can be found online:

<http://www.cdha.nshealth.ca/discovery-innovation/research-progress-newsletter>

We are proud to again be included as one of Canada's Top 40 Research Hospitals as ranked by ReSearch InfoSource for the 8th time. The ranked list of Research Hospitals has been compiled by ReSearch InfoSource since 2009 and NSHA has been included every year. ReSearch InfoSource also reports that research spending at NSHA has increased 24% since 2014-2015 ranking NSHA #4 in the top 10 Research Hospitals by Growth in Canada. "Research is becoming a key part of the way we do business, not a sideline or a luxury" says Dr. Patrick McGrath, Integrated Vice President of Research, Innovation and Knowledge Translation. NSHA is also listed as #9 of the Top 10 Hospitals with High Intensity (research spending as a % of total hospital spending). For more information and the full list of hospitals:

[https://www.researchinfosource.com/top40\\_hosp.php](https://www.researchinfosource.com/top40_hosp.php)

We are also celebrating success for our internal research awards. Between the NSHA Research Fund (NSHA RF) and the Translating Research Into Care (TRIC) grant program, these local sources have funded \$4.2 million in local research since 2007! See page 7 for more information about how to apply for these opportunities.



*The Research in Progress newsletter started in April 2008, it was 4 pages long and featured funding and educational opportunities as well as announcements of large grant winners*

January 2017

## Do you have questions? The RMU has answers!

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### What is biostatistics and how do I know what analysis technique is best suited for my data?

Biostatistics is a specific branch of statistics used to help in the understanding of observed outcomes in a range of disciplines in the field of health. The application of statistics to a specific collection of data can help find possible links or associations between a set of characteristics and a specific outcome. Biostatisticians are trained in multiple disciplines in the field of mathematics, and while this is an exact science, many problems in biostatistics do not have black and white solutions. The choice of data to be collected may change depending on your research objective.

### What types of outcomes can I use in my research?

Depending on your area in health, typical outcomes can be grouped into a few categories. The most commonly seen in health research are as follows:

1. Continuous outcomes
2. Dichotomous outcomes
3. Time to event outcomes

A continuous outcome is one that takes on a large range of possible values. For example, cholesterol levels, heart rate, change in lean mass, depression scores. A specific objective using continuous outcomes could be to determine if age impacts body weight. A dichotomous outcome is any outcome that can be classified into 1 of 2 possible choices. Common examples include mortality, presence of a specific condition, or a yes/no response on a questionnaire.

Often the choice of outcome depends on the ease of interpretation. Continuous outcomes

are often broken down into 2 dichotomous categories. In the previous example, we wanted to determine if age impacts body weight. First, a collection of data including age and body weight in a set population is obtained. Using this data, we can estimate average weights in specific age groups, or calculate a parameter that defines the change in weight per year increase in age. However, depending on your target audience a simpler approach may be better. The outcome may be expressed as the proportion of individuals classified as obese. In this way, you may be able to report something a little more specific such as: “obesity rates were greater in those in their thirties compared to those in their twenties”.

A time to event outcome can be simplified into any dichotomous outcome in which we are not only interested in whether the event occurred or not, but also when the event occurred. Common examples include time to mortality, time to remission, or time to serious adverse event. The choice of which question you may want to answer is not black and white, and depends on your specific objective. We might be interested in knowing if obesity was associated with decreased survival following surgery for cervical cancer. Although this is a different question than knowing if obesity is associated with 5 year survival rates. If 5 year survival rates are the same in both groups, but one group experiences better survival early on, perhaps a time to event analysis is more important. However, another approach might be to measure 1-year survival alone. When attempting to get published, the authors must always justify their choice, and clearly state why this choice was clinically relevant.

*This issue's answer provided by: Steve Doucette [steven.doucette@nshealth.ca](mailto:steven.doucette@nshealth.ca)*

## **What types of analyses are most appropriate for my data?**

As previously mentioned, the procedures used to determine analytic techniques are generally not always simple. If your understanding of biostatistics is limited, then the following information may not be useful. However, if you've taken a few courses in statistics, or have been involved in various literature reviews, this may act as a quick refresher. In either case, statistical analyses should always be done with the consultation of a statistician or someone with an advanced understanding of biostatistics.

Many continuous outcomes are represented as means or medians, and analyzed using various linear regression techniques. It is here where the use of t-tests, ANOVA, and Pearson's correlations, are commonly seen. Dichotomous outcomes are often summarized as frequencies with percentages, and the use of chi-squared test statistics, effect size measures such as odds & risk ratios, and logistic regression are common. Time to event analyses is where you would find the use of a Kaplan-Meier curve, hazard ratios, and Cox proportional hazards models. These methods are just the tip of the iceberg when it comes to statistical analysis methods. Nevertheless, in many circumstances these basic techniques are more preferable.

## **Conclusion**

The choice of outcome is dependent on the research objective, and the choice of analysis is dependent on the type of outcome. Often, researchers will mistakenly choose these in reverse order by collecting data to fit the analytic method they wish to employ. They are then forced to define an objective that fits the type of analysis and choice of outcomes. However, these outcomes may or may not

be useful to their primary research question. The key is to start with an objective, a key research question, or a hypothesis wished to be answered. From there, the type of outcome and best analytic technique is typically much easier to sort out.



*Steve Doucette,  
Senior Biostatistician, RMU*

Finally, even though biostatistics and the wide variety of methods available may seem overwhelming, in many cases, simpler is better. A biostatistician can help you choose a method that is a balance of one that is easy to convey and at the same time answers your research question using one of potentially many valid techniques.

*Steve Doucette, MSc, is the Senior Biostatistician within the Research Methods Unit (RMU) and an adjunct research associate in the Department of Community Health and Epidemiology, Dalhousie University. He holds a Masters degree in Mathematics and Statistics with specialization in Biostatistics from the University of Ottawa. His areas of interest include the design and analysis of clinical trial data, diagnostic testing, propensity matching for case control studies, and meta-analytic techniques for pooling multiple trial data. As a senior biostatistician, Steve has knowledge in many statistical software packages including the SAS language and SPSS for both data manipulation and analysis; NCSS/PASS for sample size calculations; Comprehensive Meta Analysis for performing systematic reviews. His research interests are to further continue performing essential work in the area of medical research, clinical trials, biostatistics, systematic reviews and meta-analysis while further diversifying his knowledge of these and other disciplines.*

# Researcher Profile

## **What is your current research project?**

Currently, I am working with my coordinators (Laura Sills and Elizabeth Larsen) to recruit patients for a multi-center National study evaluating the impact of frailty on outcomes of patients who are waiting for a kidney transplantation. I am also involved in a number of research studies across the spectrum of kidney disease including dialysis and transplant.

## **How did you become interested in your research topic?**

Frailty is common in patients with kidney disease, and I am interested in the health outcomes of frail patients. As a physician who participates in our kidney transplant wait list meeting, I have come to recognize that many who are considered for transplantation are frail, (that is, at a higher risk of future health events relative to others). However, frailty is not a standard part of the wait list eligibility assessment.



*Dr. Karthik Tennankore, MD, FRCPC  
Nephrologist*

## **What has been unexpected about your findings so far?**

Some of our preliminary research in this area has shown that the prevalence of frailty varies widely depending on which tools you use to assess it. That being said, frailty is common in patients on dialysis irrespective of age and associated with a higher risk of poor health outcomes. How that will translate to the current study remains to be seen.

## **What's innovative about your research?**

To our knowledge, this is the first study to specifically try to assess the impact of frailty for the group of patients who are activated on the kidney transplant wait list. We hope to use this information to develop a risk prediction tool that can be used for the wait list eligibility assessment.

## **What unique tools/methods do you use to do your research?**

Our study will assess frailty using a variety of different measures. Some of these require unique equipment (including a dynamometer to measure grip strength) or questionnaires to evaluate cognition and function.

## **One word that best describes how you work:** Committed!

## **What technology can't you live without?**

My Mac, my phone and STATA (a program I can use to do my own analyses and statistics).

## **How do you envision your research benefiting the "public at large"?**

We do not know if frail patients are at a higher risk of adverse health events while waiting for a transplant or shortly after transplant relative to those who are not frail. This information would be very valuable to physicians and patients, and may guide how we evaluate kidney transplant candidates at the local and national level.

# Congratulations!



*Dr. Uher (third from right) receives his award. With him (from left) are Dr. Chris Caruthers (chair, Mach-Gaensslen Foundation), George Weber (president & CEO, The Royal), Louise Bradley (president & CEO, Mental Health Commission of Canada) Dr. Zul Merali (president & CEO, The Royal's Institute of Mental Health Research), and Scott McLean (chair, The Royal's Board of Trustees). (Photo via [www.theroyal.ca](http://www.theroyal.ca))*

Congratulations to Dr. Rudolf Uher who is the winner of the annual The Royal-Mach-Gaensslen Prize for Mental Health Research. Dr. Uher received the \$100,000 prize in October 2016. Dr. Uher also became a member of the Royal Society of Canada's College of New Scholars, Scientists and Artists. Dr. Uher's FORBOW (Families Overcoming Risks and Building Opportunities for Well-Being) project started in 2013 and was recently profiled in our *Research Annual Report 2016* as well as CBC News (*Jan 13, 2017*).

The FORBOW project is a research study that seeks to learn about the experiences of people ages 0 - 24 years old. The participants play games and answer questions and could also have brain scans. For participants aged 0-3 clinical visits take place in the Centre for Clinical Research. For more information about the project, visit:

<http://www.forbow.org>



## Research Annual Report - 2016 Research Leads to Better Outcomes and Better Care

The 2016 Research Annual Report has just been released. Read a collection of stories about research that is happening across Nova Scotia in print or online.

If you would like a printed copy of the report, please contact:  
[amy.wilson@nshealth.ca](mailto:amy.wilson@nshealth.ca)

The report is also available at:  
<http://www.cdha.nshealth.ca/discovery-innovation/annual-reports>

# Educational Opportunities

Date/Time	Series/Topic	Presenter	To Register/More Info
<b>February 8, 2017</b> 8:30am- 3:00pm	RMU: Qualitative Health Research Methods Workshop	Olga Kits	email: <a href="mailto:sandra.pauls@nshealth.ca">sandra.pauls@nshealth.ca</a> <i>*Note: \$100 fee payable upon registration</i>
<b>February 15, 2017</b> 12:00noon- 1:00pm	Research Education Program, Building Research Capacity- <i>Quantitative Data Collection &amp; Analysis Part 1</i>	Dr. Jennifer Payne	email: <a href="mailto:elaine.strohm@nshealth.ca">elaine.strohm@nshealth.ca</a>
<b>February 15, 2017</b> 8:00am- 9:00am	Innovation Rounds: <i>Innovation in the IWK Emergency Department</i>	Dr. Ingrid Sketris, College of Pharmacy, Dalhousie University et. al	email: <a href="mailto:elaine.strohm@nshealth.ca">elaine.strohm@nshealth.ca</a>
<b>February 23, 2017</b> 6:30-8:00pm	<i>Better Now: 6 Big Ideas to Improve Health Care for All Canadians</i> Public Talk and Book Signing	Dr. Danielle Martin	<a href="http://www.betternow.eventbrite.ca">http://www.betternow.eventbrite.ca</a>
<b>April 19, 2017</b> 12:00noon- 1:00pm	Research Education Program, Building Research Capacity- <i>Bias in Epidemiological Study Designs</i>	Dr. Hala Tamim	email: <a href="mailto:elaine.strohm@nshealth.ca">elaine.strohm@nshealth.ca</a>
<b>April 20, 2017</b> 12:00noon- 1:00pm	Research Education Program, Standards & Regulations- REACH- <i>Project Management</i>	Amy Wilson, Publications Coordinator, NSHA	email: <a href="mailto:elaine.strohm@nshealth.ca">elaine.strohm@nshealth.ca</a>

## NEW: Post Session Recordings Available Online!

Disappointed to have missed an educational session? Select educational sessions are now available for viewing as post-session recordings online.

Check out our vimeo channel!

<https://vimeo.com/channels/nsharesearch>



Questions/Concerns/Comments? Contact: [amy.wilson@nshealth.ca](mailto:amy.wilson@nshealth.ca)

## Not available to come in person? Have Lync?

You may be able to join an education session remotely! Please send a note to the registration email next to each session to enquire about joining sessions remotely.

# Funding Opportunities

Deadline	Program Name	Agency	More Information
March 15, 2017	NSHA Research Fund (NSHA RF)	NSHA	<a href="http://www.cdha.nshealth.ca/discovery-innovation/research-fund-competiton">http://www.cdha.nshealth.ca/discovery-innovation/research-fund-competiton</a>
March 22, 2017	Establishment Grant	Nova Scotia Health Research Foundation*	<a href="http://www.nshrf.ca/establishment">http://www.nshrf.ca/establishment</a>
March 22, 2017	Development Grant	Nova Scotia Health Research Foundation*	<a href="http://www.nshrf.ca/development">http://www.nshrf.ca/development</a>
March 22, 2017	Scotia Support Grant	Nova Scotia Health Research Foundation*	<a href="http://www.nshrf.ca/scotiasupport">http://www.nshrf.ca/scotiasupport</a>
May 1, 2017	Translating Research Into Care (TRIC)	QEII Foundation	<a href="http://www.cdha.nshealth.ca/discovery-innovation/qeii-fdn-tric-grants">http://www.cdha.nshealth.ca/discovery-innovation/qeii-fdn-tric-grants</a>

## New Funding Opportunity: Genome Atlantic

Genome Canada has expanded to include the Atlantic provinces in it's next round of funding. Genome Canada is launching the Large-Scale Applied Research Proejct Competition in Precision health (LSARP) this winter. The competition supports projects that “demonstrate how genomics-based research can improve health care, contribute to a more evidence-based approach to health, and enhance the cost-effectiveness of the health care system.”



**GenomeAtlantic**  
Life Sciences. Life Solutions.

Projects are expected to be up to 4 years long and can receive funding up to \$10 million.

A pre-application process is already underway and interested teams can contact: Jayne Sierans ([jayne.sierans@nshealth.ca](mailto:jayne.sierans@nshealth.ca)) for more information.

The anticipated timeline includes:

- White board sessions for teams (early February 2017)
- Pre-submission reviews (Feb-Apr 2017)
- Registrations due to Genome Canada (March 2017)

More information can also be found on their website: <http://genomeatlantic.ca>

*\*Please note: all NSHRF grants are now in a new online format and a number of changes and updates were made in 2017. Please visit the website for their most up to date information regarding these opportunities.*

# Research Resources

## Researcher Directory- Join Today!



We invite all NSHA Researchers to join the Researcher Directory available on our website. It continues to grow as more and more researchers sign on. It only takes a few moments to join. If you would like to be included, please submit a researcher directory form to: Amy Wilson ([amy.wilson@nshealth.ca](mailto:amy.wilson@nshealth.ca))

You can join the Directory or access Directory listings at:

<http://www.cdha.nshealth.ca/discovery-innovation/researcher-directory>

**RMU**  
Research Methods Unit  
**RMU**

### Research Methods Unit (RMU)

Do you need help refining the quantitative or qualitative methods for your research project, health economics, developing an analysis plan, data collection, building a database, managing your data, or analyzing your data? Would you like a quote for methods support for an upcoming funding application? The RMU can help. Our priority is to support your research.

It's easy—visit our web site to download an RMU Consultation Request form. Complete and send the form to us. We'll be in touch shortly thereafter to book an initial consult during which we will work with you to identify the best solution(s) for your needs. For more information about how the RMU can help your research, how the RMU consulting process works or to request a quote for an upcoming research grant application, please visit: <http://www.cdha.nshealth.ca/rmu>

CANADA'S TOP  
**40**  
RESEARCH  
HOSPITALS  
2016 **RESEARCH**  
Infosource Inc.

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<http://www.cdha.nshealth.ca/discovery-innovation/research-progress-newsletter>

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