DALHOUSIE UNIVERSITY

FACULTY OF MEDICINE
Department of Surgery

The UPDATE
Winter 2021

DAL Surgery made history this past year when Dr. Stephanie Hiebert, MOTP Surgeon led an all-female surgical team to complete a liver transplant.

This amazing team of 7 is believed to be the first all female surgical team to perform a liver transplant in Canada.

Team Members: Surgeons, Dr. Stephanie Hiebert and Senior Dal Surgery General Surgery Resident Dr. Ashley Drohan; Anesthesiologists; Drs. Adrienne Carr and Delores McKeen and Nurses Jennifer Kidson, Ambert Kelly and Antonia Mavrogiannis.

This story received national recognition and attention. Dr. Hiebert's sentiment is quoted in local media "I think we've come a long way in the last couple of decades with women going into surgical fields, I think there are still areas of surgery that are less appealing to women and still more dominated [by men], and certainly transplantation is one of those fields."

Dr. Hierbert shares that there may be only three female transplant surgeons in Canada. She has recognized two or three young female trainees showing interest in transplant surgery pronouncing, "We're coming!" And they are!

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This framed picture made it's way up to the DOS Admin offices. Golf Day – circa 1980

The Beacon UPDATE Winter 2021

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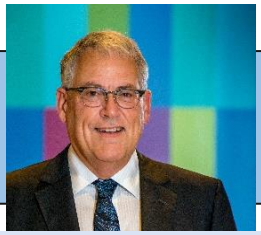
On the cover – Sambro Island Light House.



Message from the Department Head Dr. David Kirkpatrick

If the Big story for 2020 was Covid -19 then 2021 is about the race to vaccinate the willing before the variants push us into a third wave followed by a long and undoubtably storied recovery. With plenty of help from the leadership of the Department of Anesthesia, members of the department along with residents and fellows were able to be fully vaccinated early in the new year allowing us to continue deliver care posing less risk to ourselves and others.

Dr. Greg Knapp

Despite pandemic related barriers, our elective clinical productivity was only off by 15 percent from April 1,2020 to December 31,2020 compared to the same period the previous year, while emergency and urgent surgical care volumes continued largely unaltered. Our teaching programs are fully intact and research activity has resumed. All this has occurred because of the efforts of many people who were determined to make it all work. The unsung heroes have been our administrative assistants who have had to operationalize ever changing protocols.

Dr. Kevin Orrell

Traditionally global health initiatives center around service delivery or education. During the pandemic, these activities have been on hold**. Dr Greg Knapp,** the newest member of the department and our new Director of the department's Global Surgery Office, has established collaborative research as central to our global health mission. Our office now participates in an international colon cancer database that includes a major academic center in Nigeria.

Dr. Alex Mitchell

Two members of our department now hold important external leadership positions**. Dr. Kevin Orrell** is an orthopedic surgeon from Sydney who has been a member of our department for many years and is now our Deputy minister of Health. **Dr. Alex Mitchell** is a general surgeon who was the site chief of surgery at the Dartmouth General Hospital. Alex has recently succeeded Paula Bond as Vice President QE11 Redevelopment. Paula is now the Assistant Deputy Minister of Health. It is very comforting to know that these important portfolios are occupied by those that understand surgical care delivery. It has not always been that way.

Research Report
Dr. Michael Dunbar

Department of Surgery Research Day is fast approaching – April 7th, 8th, and 12th. The DOS Research Committee received over 60 abstracts for presentation consideration. Due to Covid-19 related concerns, we will again be delivering research day remotely via MSTEAMS. Please check the DAL Surgery Research Webpage for all programme information and linkages to our remote research day session:
https://medicine.dal.ca/departments/department-sites/surgery/news-events/events/research-day.html

This years Dr. Gordon Bethune Visiting Professor
Dr. Teodor Grantcharov, MD, PhD
Canadian Research Chair in Simulation and Surgical Safety
Professor of Surgery
University of Toronto
"MODERN STRATEGIES TO ENHANCE PERFORMANCE, EFFICIENCY AND SAFETY IN THE OPERATING ROOM"

Clinical Investigator Program

Progress is on track for all Departmental residents enrolled in the CIP:

Dr. Claudia Cote, Cardiac Surgery
Dr. Erika Leck, Neurosurgery
Dr. Rakesh Guidemella, Plastic Surgery
Dr. Joel Bierer, Cardiac Surgery
Dr. Phil Tremblay, Cardiac Surgery
Dr. Catherine Deshaies, Cardiac Surgery

Congratulations are extended to Dr. Claudia Cote and Erika Leck for their recent NSHA Student and Trainee Research Awards!

Dr. Catherine Deshaies and Dr. Phil Tremblay are preparing for their defenses, which will be held this spring. .

Dr. Claudia Cote

Dr. Joel Bierer

Dr. Rakesh Gudimella

Dr. Erika Leck

The Research Office continues to work on projects with all surgical divisions. During this Covid Social Distancing year, an impressive research partnership with Dalhousie Industrial Engineering has been established to exam the surgical capacity modell. We ccontinue to work with The Institute fof Big Data Analytics at Dalhousie Computer Science in investigating the relationship between wait times and length of stay. Multiple findings will be presented by residents at Department of Surgery Research Day in April.

Education Report
Dr. David Tang

Our sound education and training curriculum has carried on through this past covid-academic terms. Our students and trainees remained committed to consuming knowledge and skill sets. Surgery training is a demanding learning endeavor, and as educators and mentors, it is a good time to refresh long standing proven learning theory:

Cognitive Load Theory in Surgical Training

You are midway through an operation with your resident taking the lead on the case and a medical student serving as second assist. The case is going well and you are thinking of how to engage the student by creating a learning opportunity for them.

> ***Surgeon***: *"Melanie, do you see how nicely Dr. Jones has exposed this transverse fracture… if this was a long spiral fracture pattern instead, how might her plan for fixation be different?"*
> ***Student***: *"Hmmmmm… good question, I'm not sure actually."*
> ***Surgeon***: *"Ok, maybe Dr. Jones can help answer the question for you."*
> **** silence from all members of the surgical team ****
> ***Surgeon***: *"Dr. Jones, your thoughts?"*
> ***Resident***: *"Oh, I'm sorry, what was the question?"*
> ***Surgeon***: *"If this was a long spiral fracture pattern instead of transverse, how might you fixate it?"*
> ***Resident***: **** physically stops operating to think and then answer the question ****

Does this scenario sound familiar to you? How often have you asked a question to your resident to further probe their knowledge during a surgical procedure to have them need to actually stop operating completely in order to collect their thoughts and answer?

While you may have wanted to have them just keep operating while they talk to you and answer your question, there is an important reason why they cannot – it has to do with **Cognitive Load Theory (CLT)**.

CLT builds upon established models of human memory, specifically working memory. It has been proposed that working memory defines the number of informational elements a human brain can process at any given time – think of it as the RAM of the human brain. This limited working memory constraint (different for each individual) can create a bottleneck for learning. CLT further identifies three types of cognitive load that impact working memory:

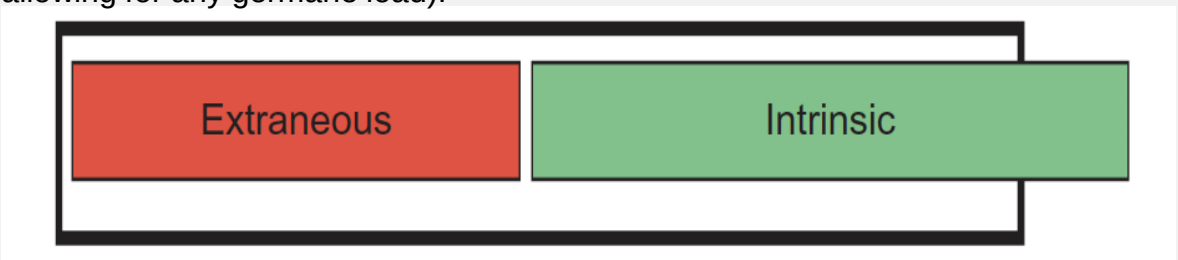
1. **Intrinsic Load**: associated with performing essential aspects of the task.
2. **Extraneous Load**: associated with non-essential aspects of the task.
3. **Germane Load**: associated with deliberate use of cognitive strategies to facilitate learning during the task.

In other words, the **intrinsic load** is how much brain power it takes to perform the surgery; the **extraneous load** is how much brain power it takes to drown out all the other things happening in the operating room (people walking in and out of the room, nurses having a conversation about their weekend, music playing, and yes even you asking them a question about something not directly related to the specific procedural task before them); and the **germane load** is how much brain power it takes to translate what they are physically doing in the moment into a learning experience to be used for future similar operations.

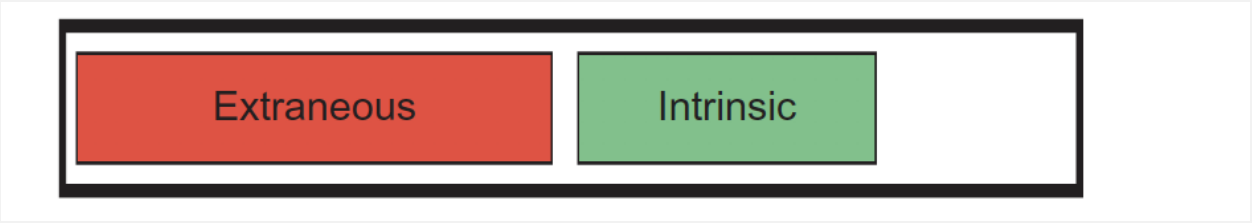
Importantly, when the cognitive load associated with a task **exceeds** the learner's working memory, performance ***and*** learning is impaired!

Cognitive Load >> Working Memory = Poor Performance and Learning

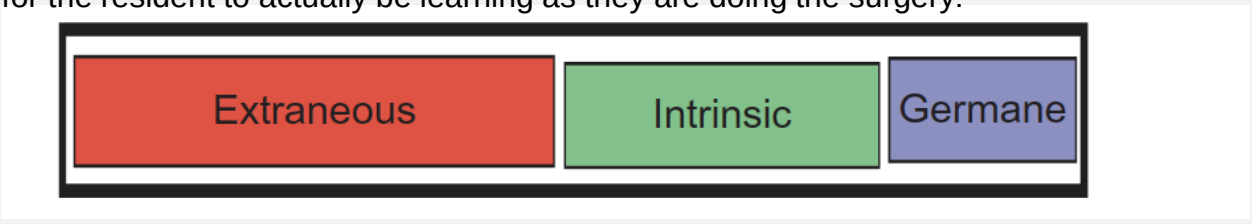
To put this into graphical form, the cognitive load of an early resident performing a task might look like this (with the extraneous and intrinsic loads exceeding their working memory, not even allowing for any germane load):



By contrast, the cognitive load of an experienced surgeon with no intention to learn might look like this (leaving room for greater distraction or more challenging tasks):



The goal for surgical training however, should be a situation where the extraneous and intrinsic loads on the resident are low enough that it allows for a germane load to be applied for the resident to actually be learning as they are doing the surgery:



So, what can you as a surgical educator do to facilitate this type of learning environment?

Decrease the extraneous load:

- Reduce interruptions and distractions in the operating room (eg. irrelevant conversation, distracting music, staff questioning not directly related to the task)

Titrate the intrinsic load to the developmental stage of the learner:

- Ensure residents have prepared for the surgery (ie. know the anatomy/steps)
- Simplify tasks without decontextualizing them (apply part-task opportunities)
- Provide 'just-in-time' instructions precisely when the resident needs it

Ensure the unused working memory capacity is dedicated to the germane load:

- Promote learning routines through corrective and immediate feedback
- Employ cognitive strategies that facilitate learning
- Promote reflection through cognitive feedback

There are many more strategies for optimizing the cognitive load on resident learners in both the operating room and outpatient clinic setting. Hopefully, this brief review will provide you with some food for thought and a couple tangible educational tools for you to use the next time you are in the operating room with your resident!

Reference: *Young JQ, Van Merrienboer J, Durning S & Ten Cate O. (2014). Cognitive Load Theory: Implications for medical education: AMEE Guide No. 86. Medical Teacher. 36: 371-84.*

Order of Canada
Dr. Ken Wilson

Please join me in congratulating **Dr. Ken Wilson** for his recent appointment to the **Order of Canada**. Ken has been a member of the Department of Surgery for many years serving as Chief of Surgery at the IWK as well as the residency program director in plastic surgery for the Faculty of Medicine. Although retired from clinical practice he continues to serve our profession a liaison between Doctors Nova Scotia and MSI.

His appointment to the Order of Canada by the Governor General of Canada is in recognition of his contributions to the field of Plastic and Reconstructive Surgery and his international missionary work.

David Kirkpatrick, Head, Department of Surgery

"It's a great honour that I would even be considered," says Dr. Wilson. "I have been so fortunate in my career to have the opportunity to do so many things, and work with such great people. The award itself is a bonus on top of what has been a fulfilling and wonderful career. It's the icing on the cake, rather than the cake itself. To be named to the Order of Canada was beyond my expectations."

Faculty Spotlight
Dr. Paul Hong

Dr. Paul Hong is fellowship-trained pediatric otolaryngologist and an associate professor in the Department of Surgery and the School of Communication Sciences and Disorders at Dalhousie University. He completed medical school at University of Ottawa, residency training at Dalhousie University and pediatric otolaryngology fellowship at University of California-San Diego. Dr. Hong also earned a MSc degree in Biomedical Engineering at Dalhousie University.

Dr. Hong is a clinician scientist and who serves as the Research Director for the Division of Otolaryngology-Head and Neck Surgery at Dalhousie University. He has over 125 peer reviewed scientific publications and have been cited widely (h-index 27). His main area of research is in shared decision making in elective pediatric otolaryngology surgical procedures.

In addition to training residents and medical students, Dr. Hong teaches a full-term graduate course for the audiology and speech-language pathology students at Dalhousie University. He has supervised many undergraduate, graduate and medical students, along with residents and fellows, in both the clinical and research settings.

Currently, He is the President of the Medical, Dental, Scientific and Affiliated Staff at the IWK Health Centre. Dr. Hong serves as a director on the IWK Health Centre's Board of Directors.

Dr. Hong was asked if could heed any advice to future trainees, his response was simply "*Be aware of your biases and be kind, I am still working on both of these everyday*"

Pictured:
L: Dr. Mark Taylor, Head – Otolaryngology , Middle: Dr. David Forner, Resident Otolarygology and Right Dr. Paul Hong 2019 National ENT Conference.

Dr. Hong has been Voted to be a member of the ***Collegium Oto-Rhino-Laryngologicum Amicitiae Sacrum (CORLAS)***.

CORLAS is a prestigious international otolaryngology scientific society that permits only 10 active members per country; members are nominated and selected by national and international CORLAS members based on previous academic and research work. Only 2 otolaryngologists from the Atlantic provinces are members of the CORLAS.

Dr. Hong was Inducted to be a fellow of the **Triological Society.**

Triological Society is the most prestigious otolaryngology society in North America; candidates must submit a thesis paper based on substantial research to be inducted.
Dr. Hong is the only otolaryngologist in Atlantic Canada that is a fellow of the Triological Society

Dr. Hong is the recipient of numerous prestigious research awards from international societies and trainee research awards from national and international societies.

I have had the pleasure of working with, and being mentored by, **Dr. Paul Hong** throughout my medical school and residency training. Dr. Hong has played a major role in my development as both a clinician and as a researcher. As a clinician, his ability to apply evidence-based practice in a meaningful, compassionate way is exceptional. He is a meticulous surgeon who maintains an astute ability to see the bigger picture. This facilitates his role as a teacher within the operating room, invariably instructing and allowing residents to gain hands on exposure.

Being our divisional research director and an accomplished scientist, Dr. Hong has fostered my interest in a career that includes research. His teaching has extended from crucial basic research training to mentoring on how to mentor – an often-overlooked skill that is essential to develop as physicians. His research acumen is unparalleled, each year having multiple trainees win prestigious awards within otolaryngology and beyond. In the past year alone, he has supervised several divisional, departmental, and national award-winning studies. This is a testament to both his own research ability and his success in trainee mentorship.

"Dr. Hong is a tremendous role model, one whom I strive to emulate!"

*Submitted by **Dr. David Forner**, PGY 3 Otolaryngology Resident*

New Faculty

Dr. John Scott joined the Division of Otolaryngology- Head & Neck Surgery this past fall. He recently completed a rhinology and endoscopic anterior skull base surgery fellowship at the University of Adelaide in South Australia. His surgical interests include endoscopic sinus surgery, lacrimal surgery, rhinoplasty and minimally invasive approaches to the anterior skull base. Dr. Scott's research interests include the complex relationship between asthma and sinus disease as well as the role of biologic therapies in chronic sinusitis. He enjoys teaching medical trainees of all levels and is excited to begin his career at Dalhousie University. Outside of the hospital Dr. Scott enjoys staying active and spending time with his newborn son, Luke. Welcome Dr. Scott!

Dr. Greg Knapp recently joined the Department of Surgery – Division of General Surgery. He received his MD from McMaster University and completed his residency in General Surgery at Dalhousie. Dr. Knapp completed Fellowships in General Surgical Oncology at the University of Calgary and International Surgical Oncology Global Cancer Disperrities at Memorial Sloan Kettering Cancer Centre. Dr. Knapp's research interests include global oncology, access to cancer care and screening in LMICs, GIS, breast cancer and peritoneal surface malignancies. Dr. Knapp is the newly named Director of the Global Surgery Office. Please follow the Global Surgery Office on twitter @DalGlobalHealth . Welcome Dr. Knapp!

International Pediatric Spine Study Group

Pediatric Orthopedic Surgeon, **Dr. Ron El-Hawary** is the president of the governance council of the Pediatric Spine Study Group (PSSG). The PSSG mission statement, ***"Help children with spine problems live longer, better lives"***. Under Dr. El-Hawary's leadership the PSSG has set up three primary initiatives:

Expand Research Impact
- Created PSSG in 2019
- Consolidated infrastructure and registry
- Completed first tether projects
- Added 7 new sites.

Expand Educational Impact
- Hosted ICEOS with 216 attendees
- Continued to build parent research web portal with all new publications
- Improved social media and outreach on both Facebook and Instagram.

Improve QVS
- Implemented quality dashboard for all participating PSSG sites
- Implemented database query system
- Automated quarterly site reports

Any patient with a spine and or chest wall disorder can be enrolled in PSSG Database. Those with early onset scoliosis, immature complex scoliosis, cervical spine disorders and those with tweeners/tethers.

RIM Students, **Jonny Oo**re and **Brandon O'Connell** presented at ICEOS and published PSSG data

Orthopaedic Fellow, **Dr. Yehia El-Bromboly** who completed PhD with Dr. El-Hawary on PSSG data

Pictured Left; Dr. Ron El-Hawary with a patient enrolled in the PSSG

https://childrensspinefoundation.org/