

Vancouver General Hospital

VGH Emergency Medicine Research Newsletter

Over the last year...

*The Emergency
Department Research
Division has completed
another productive year!*

	New CIHR Grants	9
	Publications in peer reviewed journals	58
	Presentations	61
	Research Assistants & Student Volunteers	27

Congratulations to our Researchers

Inside this issue:

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- ◇ **Brubacher JR**, Brussoni M, Bryan S, Chan H, Evans D, Erdelyi S, Lund A, Harris D, Staples J. Predictors of poor health and functional recovery following road trauma: An emergency department (ED) inception cohort study. CIHR \$875,925. Jan 2018.
- ◇ **Brubacher JR**. Demographic and Regional Variation of Drug-Impaired Driving in Canada. Alberta Ministry of Transportation; Saskatchewan Government Insurance; Ministry of Transportation of Ontario \$250,000. Sept 2017.
- ◇ **Brubacher JR**. Health related quality of life following road trauma: An emergency department inception cohort study. MSFHR Health Professional Investigator Award \$450,000 May 2017.
- ◇ **Brubacher JR**, Asbridge M, Brant R, Chan H, Erdelyi S, MacDonald S. Evaluation of the effect of cannabis legalization on road safety. CIHR \$845,325. May 2017.
- ◇ Leadbeater B, Fyfe M, Richard S, **Brubacher JR**, Gabriel M, Kara T. Trajectories of marijuana use across a decade: Their predictors in adolescence and impact on health, academic, social, and economic outcomes in young adulthood. CIHR. \$99,974. Dec 2017.
- ◇ Staples J, Sutherland J, **Brubacher JR**. Does a complex care discharge planning initiative reduce unplanned hospital readmissions? PHC Research Institute & VCHRI \$50,000. May 2017.
- ◇ **Hohl CM**, Balka E; Trimble J, O'Connor P, Nakagawa B, Moneo M, Brasher P, Mitton C. Rewarding Success Travel Grant. CIHR \$2,500. Feb 2017.
- ◇ **Hohl CM**, Buxton J, **Purssell RA**, **Moe J**, Curran J, Tyndall M, Godwin J, Kendall P. Systematic Review of Naloxone Interventions in Opioid Overdoses. CIHR, Operating Grant: Opioid Crisis Knowledge Synthesis \$110,000. Apr 2018.
- ◇ **Hohl CM**, **Moe J**, Grafstein E, Holroyd B, Schull M, Dong K, McGrail K, McGregor M. Identifying Risk and Transitions Among Frequent ED Users: Whose Needs Can Safely Be Met Elsewhere? CIHR. \$70,000. Apr 2018.



Dr. Chad Kim Sing
Department Head
Emergency Medicine

Dr. Jeff Brubacher presented his research on Cannabis and Crashes to the House of Commons Standing Committee on Justice and Human Rights

Congratulations Continued...

- ◇ **Hohl CM**, Grafstein E, Moneo M, Partovi N, Trimble J, Balka E, Brasher P, Mitton C. Implementing and Evaluating Action ADE to Transform Medication Safety. CIHR Operating Grant: SPOR iCT Rewarding Success - Travel Award & Development Grants \$102,500. Mar 2018.
- ◇ **Ho K**, Cheema S, Ho B, Ho B, Stacy E, Cheema G, Novak, Lauscher H, Bains J, Holms S. Evidence Supported Self-management Enablement and Cultural Engagement (ESSENCE). Vancouver Foundation \$150,000. Jan 2018.
- ◇ **Ho K**. Health Professional-Investigator Award. Telehealth for emergency-community continuity of care connectivity via home Monitoring. MSFHR \$270,000. June 2017.
- ◇ **Ho K**, Novak Lauscher H, Stacy E. Intercultural Online Health Network (iCON). BC Ministry of Health, Patients as Partners Initiative \$675,000. Apr 2017.
- ◇ **Ho K** (TEC4Home Innovation Community). TEC4Home Heart Failure phase 2, BC Home Health Monitoring Executive Steering Committee, \$2,168,323. Nov 2017.
- ◇ **Ho K**, Christenson J, **Kim Sing C**, Lim M. Understanding Emergency Department Experiences: Consultation with Patients Informing Development of ED App. \$201,480. Feb 2017.
- ◇ **Ho K**, Christenson J, **Abu-Laban R**, **Kim Sing C**, Da Silva B, Novak Lauscher H. Care Connectivity: A telehealth initiative for emergency continuity of care. VGH & UBC Hospital Foundation \$ 304,250. Jan 2017.
- ◇ Amed S, Görges S, **Ho K**. The Live 5-2-1-0 eHealth App - Supporting health professionals and educators to raise a healthier generation of kids. CIHR Personalized Health Catalyst Grant \$199,870. Sept 2017.
- ◇ Christenson J, Reading J, **Ho K**, Pawlovich J. Indigenous Engagement in the Emergency Medicine Network. UBC Strategic Investment Fund \$145,719. Feb 2017.
- ◇ Servati P, Ansermino M, Dumont G, McKeown M, **Ho K**, Nasiopolous P, Lee A, Madden J, Hsiang Y, Mirabbasi S, Ipsiroglu O, Van der Loos M. Smart Innovations for Technology Connected Health (STITCH). UBC Grants for Catalyzing Research Clusters \$100,000. 2018.
- ◇ **Moe J**, **CM Hohl**, E Grafstein E, B Holroyd, M Schull M, K Dong, K McGrail, M McGregor. Identifying Risk and Transitions Among Frequent Emergency Department Users: Whose Needs Can Safely Be Met Elsewhere? CAEP Operating Grant \$5,000. Jan 2018.
- ◇ Buxton J, Janjua N, **Purssell RA**, Balshaw R, Dart R, Gomes T, et al. Opioid Prescribing Evaluation and Research Activities (OPERA). CIHR \$520,000. Apr. 2018.

Collaborative Research Policy

The VGH Department of Emergency Medicine has a tradition of producing high quality original research, and collaborating on the research initiatives of other VGH Departments or external groups. This academic mission must be balanced with the demands research places on ED patient care and teaching of Residents and Medical Students. In addition, simultaneous research projects may conflict with one another and may compete for the same patients as well as for the time and attention of our clerical, nursing, and medical staff.

For these reasons, all potential studies which require signoff by the VGH Department of Emergency Medicine undergo internal review, approval, and prioritization. It is expected that one or more members of the VGH Department of Emergency Medicine will be involved academically (as co-applicant on grants, and co-author on publications) on any significant peer-reviewed or investigator-initiated collaborative project conducted in the VGH ED. This involvement should commence during the development of the study protocol and the ED should receive appropriate acknowledgement for the role it plays for any such projects.

For further information on our research policy or to discuss a potential project please contact our Research Director (**Jeff Brubacher**; Jbrubacher@shaw.ca).



Dr. Jeff Brubacher
VGH EM Research
Director

Research Projects

TEC4Home: Supporting the transition of care from hospital to home using home health monitoring: Prior research has shown that home health monitoring (HHM) can help patients with HF and COPD in community care feel safe at home, reduce the number of acute visits, and improve overall quality of life. In 2015, VGH Emergency Physicians Kendall Ho and Chad Kim Sing, in partnership with UBC Department of Emergency Medicine, VCH, Cardiac Services BC, Division of Family Practice, and BC Ministry of Health, received funding from CIHR to study how HHM technology can best be used to support patients during the transition of care from hospital to home in B.C. In 2016, the TEC4Home Heart Failure feasibility was rolled out at a VGH, St. Paul's and Kelowna General Hospital. Upon discharge from the ED or hospital, patients were provided with the HHM equipment and asked to submit their measurements daily for 60 days. The participants were monitored by a designated "monitoring nurse" who reviewed the data and followed up to provide support or early intervention if deterioration was detected. Preliminary results from the feasibility study indicate a decrease in ED visits and hospital admissions, and an improvement in quality of life and self-efficacy.

Currently, TEC4Home Heart Failure is preparing for the implementation of a randomized controlled trial across 20 hospital sites in Vancouver Coastal, Providence, Fraser Health and Interior Health. Patient recruitment will start in the summer of 2018.

With additional funding support from Canada Health Infoway, TEC4Home COPD launched at VGH, St. Paul's and Richmond Hospital in June 2017. Using the same HHM technology, TEC4Home COPD is studying how HHM can be used to support patients with COPD recover after a hospitalization and remain stable in the community. Recruitment into TEC4Home COPD ended in March 2018 and results will be used to inform future implementation of HHM in VCH.

The TEC4Home health care innovation community is made up of healthcare professionals, researchers, administrators, and patient and caregiver partners, with support for TELUS Health.

ED Opioid Overdose Treatment Study: Drs. Roy Purssell and Jesse Godwin have initiated a retrospective cohort study funded by the MSFHR to evaluate the safety and efficacy of different naloxone dosing regimens. Health records of patients treated for opioid overdose (OD) in the EDs of seven urban hospitals from Jan 1, 2014 to Dec 31, 2017 are being reviewed. The study compares the proportion of patients who have adequate reversal within 30 minutes and the proportion of those that develop precipitated opioid withdrawal syndrome when treated with a low-initial-dose (≤ 0.15 mg) naloxone vs. high-initial-dose (> 0.15 mg) naloxone regimen. British Columbia is in the midst of a public health emergency. There have been over 1400 illicit drug OD deaths in 2017, the majority of which involve the opioid, fentanyl. The optimal management of ODs of ultra-potent opioids (such as fentanyl) is complex and currently unclear in literature. The results of this study will help to refine treatment guidelines and could lead to improved patient outcomes.

VGH ED Airway Registry: Although endotracheal intubation is performed frequently in our ED and throughout VGH, there is currently no system in place to track why and how patients are intubated, and by whom. Several studies describe the performance of intubation in EDs across North America, the UK, and Australia. However, there is no data published regarding the success rates or complications within the VGH model of emergency management, or any other centre across Canada. This project, led by Drs. Jan Trojanowski, Jeff Yoo, Colby Renschler & Jeff Brubacher involves the development



Dr. Kendall Ho
TEC4Home &
eHealth Research

Dr. Kendall Ho and his team are working to "Connect People to Better Health" using health information technologies



Dr. Roy Purssell
Road Safety &
Toxicology

Research Projects Continued...



Dr. Jesse Godwin
Toxicology Research

*Drs. Jeff Brubacher and
Herbert Chan have re-
cruited over 3000 patients
for their cannabis and mo-
tor vehicle crash study*



Rupinder Brar
Research Coordinator

and implementation of an airway registry. This will allow us to monitor and describe emergency airway management indications, methods used, operator characteristics, and adverse event rates. This information will be used to identify system and operator factors that are associated with adverse outcomes thereby providing insight into how patient safety can be improved during emergency airway management. Furthermore, it will allow us to monitor whether the implementation of departmental changes, such as an airway checklist and banding program, improves patient outcomes during intubation. The VGH Airway Registry has been collecting data on all intubations occurring in the ED, ICU, and wards since July 2016. Involvement of other hospitals in the Vancouver area and possibly BCEHS is in progress.

Renal colic study: Every year in Calgary, there are over 3000 ED visits for renal colic. About 40% of these patients are admitted for surgical intervention, consuming substantial healthcare resources. Renal colic admission and intervention rates in Calgary are about three times higher than comparable cities, a fact that has generated concern among zone health leaders. While the reason for this disparity is unclear, it is likely driven by a very responsive Urology program and local perception that early intervention leads to better outcomes. Research teams in Vancouver and Calgary are studying what happens to kidney stone patients who get different types of treatment to learn more about their perceptions of care and quality of life. This project aims to fill a gap in the literature by assessing outcomes of ED patients with acute renal colic treated medically vs. surgically, and clarifying patient subgroups most likely to experience better outcomes from an early invasive approach.

Traumatic Brain Injury: "CAN-TBI: A National Biobank & Database for Patients with Traumatic Brain Injury" is a study running in multiple hospitals across Canada; Vancouver General Hospital is the primary site in British Columbia, led nationally by Dr. Jamie Hutchinson of The Hospital for Sick Children in Toronto, and locally by Drs. William Panenka (Psychiatry), Jeff Brubacher (Emergency Medicine – VGH) and Quynh Doan (Emergency Medicine – BCCH). This Brain Canada funded research platform aims to integrate a translational biology approach with the collection of clinical, demographic, and outcome data from patients who have suffered acute mild, moderate, or severe traumatic brain injuries (TBIs). Small samples of blood are collected within 24 hours of injury for every participant, with additional samples collected for those admitted; these samples will be banked and used to study biomarkers that could help predict diagnosis and outcome, or tailor new therapies, support services, and rehabilitation strategies for TBI patients. Working closely with the clinical staff in the ED and ICU at VGH, and in conjunction with the BC Children's Biobank, our study team has enrolled over 150 patients since September 2016. The study has recently expanded into BC Children's Hospital and will also be enrolling from a paediatric population. Further research launched from this platform will take part in the international effort to transform care and improve outcome in patients with TBI.

Troponin Study: Drs. Morris Pudek, Sophia Wong and Chad Kim Sing proposed a QA study to determine whether or not 2-hour troponin results in chest pain patients provide similar information to troponin measurements done 4-12 hours post presentation. Samples from 499 patients (with goal of 770 patients) have been collected so far. Only 7.5% of eligible patients had a 2-hour troponin ordered. Of these, 32% had negative troponins at both 2- and 4-12 hours, while 66% had positive troponins at both time points. 1.6% of patients had a negative troponin at 2-hour and a positive troponin at 4-12 hour.

Research Projects Continued...

Road Safety Research Group updates (Drs. Jeff Brubacher, Herbert Chan, Roy Pursell, and John Staples): The Cannabis and Motor Vehicle Crashes project led by Dr. Jeff Brubacher has received funding from CIHR to continue another 5 years to evaluate the potential effects of legalization of recreational cannabis sale and use on road traffic safety. We have also secured first year funding to expand this project to another 3 provinces (AB, ON, SK) and have begun data collection since February 2018. The research paper examining the ability of police to recognise drug impaired driving among injured drivers has been published recently in the Journal of Accident Analysis and Prevention. The finding suggested that police rarely identified drivers who had used drugs or medications. The first set of analysis on the association between acute cannabis use and risk of crash culpability has been completed. We are currently preparing the first report on the cannabis use and crash culpability risk among injured drivers.

Dr. John Staples recently published a study examining the association between 4-20 cannabis celebration and fatal crashes. He studied 25 years of data on all fatal crashes in the US and found that the annual 4-20 events were associated with about 12% increase in the risk of fatal crashes. The study of linking syncope and subsequent crashes is under way. Dr. Staples and his team have reviewed over 2600 medical records and have linked ECG data to the syncope cohort. The next step is linking medical data to driving records.

Vahid Mehrnough's thesis exploring the association between leisure time activity and risky driving behaviors among young drivers is underway. The online anonymous questionnaire survey have been launched in March 2018. A social media platform is used to advertise and recruit potential participants. Over 500 hits on the survey website are recorded within first 2 weeks. The survey website will be posted for about one month and the goal is to recruit 2000 respondents to the survey.



Candace Yip, Kate Merchant (Syncope Study); Vahid Mehrnough (Master's Student - Road Safety Research), Angela Peng (Cannabis Study)



Dr. Herbert Chan, PhD
Research Associate
Road Safety Research

The report on "Reporting Unfit Drivers: Knowledge, Attitudes and Practice of BC Physicians" has been posted on the Emergency Medicine Network. This report includes both findings and recommendations regarding reporting unfit drivers. Thanks to all the participants who completed and contributed to the survey.

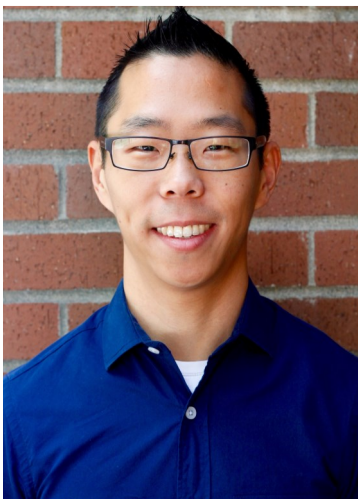
With the help of volunteering medical students, we have collected data on a convenience sample of 92 elderly patients who were treated in the Vancouver General Hospital emergency department, between August and September 2017 for the project: Driving ability and transportation needs of elderly drivers - a prospective from Emergency Department Elderly Patients. The preliminary finding indicated that many elderly drivers drive and plan to continue driving despite having medical conditions that potentially affect their driving fitness.

Research Projects Continued...



Dr. Corinne Hohl
Adverse Drug Events

*Dr. Corinne Hohl
Receives UBC Killam
Research Fellowship*



Dr. Dan Kim
Ultrasound Teaching & Research

Adverse Drug Events: In 2015, Dr. Hohl's research team received a grant fund through the CIHR eHealth Innovation and Partnership Program (eHIPP) to build the an adverse drug event (ADE) reporting platform (actionADE), and pilot its integration into an electronic medical record. In 2016, Dr. Hohl received a five-year Foundation grant to continue her work. In 2018, Dr. Hohl was awarded a business case development grant through CIHR's Rewarding Success opportunity to plan the implementation of ActionADE in hospitals in the Lower Mainland, evaluate its effectiveness, and if proven effective, scale this project province-wide.

Repeat and Preventable ADEs: Dr. Hohl and her research team are also funded by the Drug Safety and Effectiveness Network (DSEN) to answer a Health Canada query regarding the preventability of and contributing factors for ADEs. After linking these data to administrative records, the team plans to conduct further investigations identifying the proportion of preventable ADEs that are repeat events and the effect of preventable and repeat ADEs on patient and health services utilization outcomes

Risk Factors for Opioid Addiction: Dr. Hohl and her team have just begun a systematic review investigating risk factors for addiction among patients prescribed opioid medications with the aim of creating and validating a clinical decision rule to flag these patients for other (non-opioid) treatments. In collaboration with Drs. Purssell, Moe and Godwin, Dr. Hohl was also awarded CIHR funds to conduct a systematic review on naloxone interventions for opioid overdoses.

Flipped classroom technology: Dr. Donna Lee along with team members Dan Kim, Maja Stachura, and Mario Francispragasam have proposed to teach US techniques using the flipped classroom paradigm. The purpose is to make more efficient use of both learner and faculty time, to improve student engagement and interest, and to improve the quantity of information transferred. The aim is to develop a modified flipped classroom for medical students in order to learn and understand the role of emergency point of care ultrasound (US) for unstable patients in a classroom setting prior to engaging their EM rotation.

RAFF-2 Study: This is a randomized, controlled comparison of electrical versus pharmacological cardioversion for ED patients with Recent-Onset Atrial Fibrillation and Flutter (RAFF). This multi-centered study, led by Dr. Hohl is looking to improve the early ED management of RAFF patients, ultimately leading to higher rhythm conversion rates and lower admission rates. The aim is to create effective, safe, and efficient pathways for RAFF patient management in Canada. Our site has successfully enrolled 18 cases.

CANet AFib study: Atrial fibrillation (AF) is the most common arrhythmia in clinical practice. As the prevalence of AF is increasing, the number of patients with AF presenting to the emergency department (ED) is also increasing. Some of these patients are admitted for observation and treatment. Most are discharged from the ED, however more than 50% of these patients are not seen by any healthcare provider in the subsequent 90 days. The number of ED visits for AF is increasing while a smaller proportion of such patients are being admitted to hospital. This suggests that many patients may be inappropriately presenting to the ED with episodes of AF that may be treated outside of the ED setting. There is currently no evidence to support this. This study will identify the factors that play a role in motivating patients with a known history of AF to seek medical attention in the ED.

Upcoming Research Projects

REMOSYNC Study: Syncope is a sudden loss of consciousness with spontaneous, immediate and complete recovery. Of the approximate 160,000 Canadians visiting EDs annually for syncope, only a small minority are diagnosed in the ED with cardiogenic or other serious causes that require admission. In the recent multicenter prospective Canadian Syncope Study (n= 5,369) to validate the risk-stratifying Canadian Syncope Arrhythmia Risk Score, 46 patients (0.9%) discharged from the ED with a score of ≥ 3 died at home within 30-days; 0.3% (1/3) died of unknown causes. The new multicenter prospective randomized study examines the diagnostic yield of remote cardiac monitoring of patients discharged from the ED with a Risk Score of ≥ 3 . The hypothesis is that a 15-day live external event monitor out-of-hospital [OOH] [intervention arm] may identify arrhythmias that require treatment OR exclude arrhythmia as a cause that the current common 48-hour Holter monitor [control arm] could not. Dr. Paul Huang is the site investigator for this study funded by CANet. Data collection for the validation phase of the study will also be continued.

ED Assessment of Right Ventricular Function and Size in the Post Cardiac Arrest Patient: The right ventricle (RV) can yield important diagnostic clues that can aid the clinician, particularly in cases where one may suspect elevated right sided pressures, such as those due to pulmonary embolism. Classic teaching associates a dilated RV with pulmonary embolism, but this is only known to be the case in patients with spontaneous circulation. There is a paucity of literature about the appearance of the RV in the patient in acute cardiac arrest. Recent animal data suggests that RV dilatation occurs in a porcine induced cardiac arrest model, regardless of the etiology of the arrest. Dr. Dan Kim has proposed a multi-center study to assess the RV function and size in patients who are immediately post cardiac arrest. Hypothesis of the study is that RV dysfunction and dilatation will be prevalent in this population, irrespective of the etiology of their arrest.

Road Trauma Outcome Study: Dr. Jeff Brubacher has received CIHR funding to study health outcome after road trauma (RT). This study will be launched at VGH, KGH and RCH in the summer of 2018. Aim of the study is to provide healthcare providers and policy makers with evidence they can use to improve health outcome for all road users following RT.

Research Education: Dr. Riyadh Abu-Laban, UBC Department of EM Research Director, led the highly successful 7th annual "NERD Block" (Novel Education in Research & Design) for 12 Royal College EM Residents, 2 Peds EM Fellows, and 1 UBC Department of EM (EP) Faculty Member in the fall of 2017. This 1 month program involves 34 interactive small group sessions and workshops facilitated by faculty members from the Department of Emergency Medicine and Division of Pediatric Emergency Medicine on all aspects of research and critical appraisal. NERD participants gain foundational knowledge, interact with and learn about the research being done by a wide range of Emergency Medicine faculty members, and develop and advance their own research projects. Since its onset, the NERD Block has gained wide attention, both across UBC and nationally. The next NERD Block will run from October 22 to November 16, 2018 and any VGH EPs interested in participating are encouraged to contact Dr. Abu-Laban for further information.



Dr. Paul Huang
REMOSYNC Study

*VGH is prospectively
validating the Canadian
Syncope Arrhythmia Risk
Score*



Dr. Riyadh Abu-Laban
Research Education

*Our Principal
Investigators attracted
\$6,480,303 in new
grant funding*



NERD Family 2017

Publications

1. **Abu-Laban RB**, Scott I, Gowans M. Relationship between Canadian medical school student career interest in Emergency Medicine and post-graduate training disposition. CMEJ, 2017; 8(3):e4-12.
2. Sinclair D, **Abu-Laban RB**, Toth P, LeBlanc C, Eisener-Parsche P, Frank JR, Holroyd B. Collaborative working group on the future of emergency medicine in Canada (CWG-EM). Emergency Medicine training and practice in Canada: Celebrating the past & evolving for the future. (Executive Summary). CJEM, 2017; 19(S2):S1-S8. doi: 10.1017/cem.2017.372.
3. **Abu-Laban RB**, Christenson J, Drebit S. Launch of the BC Emergency Medicine Network. BCMJ, 2017; 59(10), p531.
4. Harries B, Filiatrault L, **Abu-Laban RB**. Application of quality improvement analytic methodology to emergency medicine research: A comparative evaluation. CJEM, 2018 (Accepted and In Press).
5. Pageau P, Sinclair D, **Abu-Laban RB**, Eisener-Parsche P, Frank J, Holroyd BR, LeBlanc C, Toth P. The Future of emergency medicine in Canada: Reflections one year after the release of the collaborative working group final report. CJEM, 2017; 19(S2):S38-S39. doi: 10.1017/cem.2017.366.
6. **Abu-Laban RB**, Drebit S, Lindstrom R, Archibald C, Eggers K, Ho K, **Khazei A**, Lund A, MacKinnon C, Markham R, Marsden J, Martin Ed, Christenson C. The BC Emergency Medicine Network: A paradigm shift in a provincial system of emergency care. 2018; Cureus 10(1): e2022. doi 10.7759/cureus.2022.
7. Cherpitel CJ, Ye, Y Andreuccetti, G, Stockwell T, Vallance K., Chow C, **Brubacher JR**. Risk of injury from alcohol, marijuana and other drug use among ED patients. Drug and Alcohol Dependence, 2017; 174:121-127.
8. **Brubacher JR**, Chan H, Pursell E, Tuyp B, Ting DK, Mehrnough V. Minor injury crashes: Prevalence of driver-related risk factors and outcome. JEM, 2017; 52:632-638.
9. Leadbeater BJ, Ames ME, Sukhawathanakul MA, Fyfe M, Stanwick R, **Brubacher JR**. Frequent marijuana use and driving risk behaviors in Canadian youth. JPCH, 2017; 22:7-12.
10. Wettlaufer A, Roxana O. Florica, Asbridge M, Beirness D, **Brubacher JR**, Callaghan R, Fischer B, Gmel G, Imtiaz S, Mann R, McKiernan A, Rehm J. Estimating the harms and costs of cannabis-attributable collisions in the Canadian provinces. Drug and Alcohol Dependence, 2017; 173:185-190. PMID: 28273616.



Dr. Jeff Yoo
Airway Registry

Publications Continued...

11. Cheung KW, Wong IW, Fingrut W, Tsai APY, Ke SR, Shojaie S, **Brubacher JR**, Stewart LC, Erdelyi S. Randomized controlled trial of ED initiated smoking cessation counseling and referral to a community counseling service. CJEM, 2017; 11:1-9. doi: 10.1017/cem.2017.345 (Epub ahead of print).
12. Staples JA, Vadeanu C, Gu B, Erdelyi S, Chan H, **Brubacher JR**: Syncope and presyncope as presenting complaint or discharge diagnosis in the ED: An administrative data validation study. CJC, 2017; 33:1729-1732.
13. **Brubacher JR**, Chan H, Erdelyi S, Asbridge M, Schuurman N. Factors predicting local effectiveness of impaired driving laws, BC Canada. JSAD, 2017; 78:899-909. <https://doi.org/10.15288/jsad.2017.78.899>.
14. **Brubacher JR**, Chan H, Erdelyi S, Asbridge M, Mann RE, **Pursell RA**, Solomon R. police documentation of drug use in injured drivers: Implications for monitoring and preventing drug-impaired driving. Accident Analysis and Prevention. doi: <https://doi.org/10.1016/j.aap.2018.02.018> (Epub ahead of print Feb 16, 2018).
15. Lemhoefer C, Rabe GL, Wellmann J, Bernstein SL, **Cheung KW**, McCarthy WJ, Lauridsen SV, Spies C, Neuner B. Emergency Department- initiated tobacco control: Update of a systematic review and meta-analysis of RCTs. PCD, 2017; 5:14:E89. doi: 10.5888/pcd14.160434.
16. **Cheung KW**, Wong IW, Fingrut W, Tsai APY, Ke SR, Shojaie S, **Brubacher JR**, Stewart LC, Erdelyi S. Randomized controlled trial of emergency department initiated smoking cessation counselling and referral to a community counselling service. CJEM, 2017; 11:1-9. doi: 10.1017/cem.2017.345 (Epub ahead of print).
17. Tsai APY, Tsai JP, Stewart L, **Brubacher JR**, **Cheung KW**. Prevalence of potential smoking-related conditions among tobacco users in the emergency department and their perception that their visit may be smoking-related. CJEM, 2017; 19(3):207-212. doi: 10.1017/cem.2016.381 (Epub 2016 Oct 17). (Erratum in: CJEM. 2017 May; 19(3):246).
18. **Dakin C**, Holmes N, Innes K. Multidisciplinary, in-situ simulation to evaluate a rare but high-risk process at a Level 1 trauma centre: The “Mega-Sim” approach. CJS, 2018 (In press).
19. **Hohl CM**, Partovi N, Ghement I, Wickham ME, McGrail K, Reddekopp LN, et al. Impact of early in-hospital medication review by clinical pharmacists on health services utilization. PLOS ONE, 2017; 12(2): e0170495.
20. **Hohl CM**, Woo S, Cragg A, Ackerley C, Wickham M, Villanyi D, & Scheuermeyer F. P061: Preventable adverse drug events in Canadian emergency departments. CJEM, 2017; 19 (S1), S98-S99. doi:10.1017/cem.2017.263.
21. Stockton KR, Wickham ME, Lai S, Badke K, Dahri K, Villanyi D, Ho V, **Hohl CM**. Incidence of clinically relevant medication errors after implementation of an electronic medication reconciliation process. CMAJ, 2017; Open 5(2): E345-E353. doi: 10.9778/cmajo.20170023.
22. Cragg A, Hau JP, Woo SA, Christine L, Doyle-Waters MM, **Hohl CM**. Risk factors for opioid addiction among opioid-naïve patients: a systematic review protocol. Systematic Reviews, 2017; 6: 265.
23. Perry JJ, Sivilotti M, Sutherland J, **Hohl CM**, Emond M, Calder L, Vaillancourt C, Thiruganasambandamoorthy V, Lesiuk H, Wells G, Stiell IG. Validation of the Ottawa Subarachnoid Hemorrhage Rule in patients with acute headache. CMAJ 2017; 189 (45) E1379-E1385.
24. Khan M, Sivilotti ML, Bullard MJ, Émond M, Sutherland J, Worster A, **Hohl CM**, Lee JS, Eisenhauer M, Pauls M, Lesiuk H, Wells GA, Stiell IG, Perry JJ. Factors influencing time to computed tomography in emergency department patients with suspected subarachnoid haemorrhage. EMJ, 2017; 34(1):20-26. PMID 27660386.
25. **Hohl CM**, Small SS, Peddie D, Badke K, Bailey C, Balka E. Why clinicians don't report adverse drug events: Qualitative study. JMIR JPHS, 2018; 4(1):e21.doi:10.2196/publichealth.9282.



Dr. Donna Lee
Ultrasound Education

Dr Donna Lee is developing a “flipped classroom” approach for ultrasound training



Dr. Afshin Khazei
Emergency Medicine
Physician

Publications continued...



Dr. Erik Vu
Pre-hospital care

Dr. David Sweet's Blood Culture Study is working to optimize the treatment of patients with severe sepsis



Dr. David Sweet
Sepsis study

26. Zibrik L, Huang A, Wong V, Novak Lauscher H, Choo Q, Yoshida E, **Ho K**. Let's talk about B: Barriers to hepatitis B screening and vaccination among Asian and South Asian immigrants in British Columbia. *Journal of Racial and Ethnic Health Disparities*, 2018 (In press).
27. Guo D, Phan N, **Ho K**, Pawlovich J, Kitson N. Clinical texting among medical trainees of the University of British Columbia. *JCMS*, 2018; doi: <https://doi.org/10.1177/1203475418758292>.
28. Holmes BJ, Bryan S, **Ho K**, McGavin C. Engaging patients as partners in health research: Lessons from BC, Canada. *Healthcare Management Forum*, 2018; 31(2), pp. 41-44.
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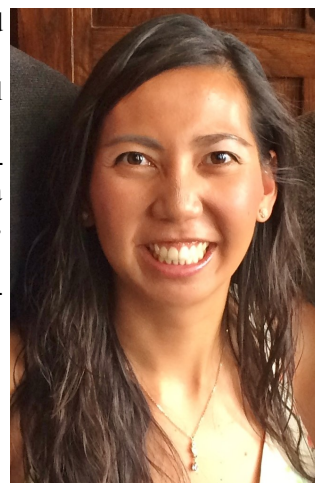
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Dr. Jan Trojanowski
Airway Registry

*The airway registry
project aims to
improve airway
management at VGH*



Dr. Jessica Moe
CAEP Rising Star
Participant

Presentations

1. **Abu-Laban RB**. The future of Emergency Medicine in Canada. Grand Rounds at UBC Department of Emergency Medicine. Vancouver. Jan 2017.
2. **Abu-Laban RB**. The Innovation Program of the BC Emergency Medicine Network. Presentation at UBC Emergency Medicine Research Day, CFRI Chan Centre, Vancouver. Apr 2017.

Presentations



Yuda Shih
Medical Student

Student research assistants help with chart reviews, data entry, patient recruitment, and literature searches



Shannon Erdelyi
Statistical Analyst

3. Andrusiek DL, **Abu-Laban RB**, Sheps S, Tallon JM, Joseph KS. The Effect of an intact "Chain of Survival" sequence on survival to hospital discharge in out-of-hospital cardiac arrest. Presented at CAEP Annual Conference, Whistler. June 2017.
4. Grafstein E, Scheuermeyer F, Doan Q, **Abu-Laban RB**, Wong B, Root M. Safety and efficiency of physician supplementation in a provincially nurse-staffed telephone service for urgent caller advice. Presented at Western Emergency Department Operations Conference, Saskatoon. Apr 2017.
5. Small SS, Peddie D, Ackerley CA, **Hohl CM**, & Balka E. Patient experiences with informational discontinuity of care: Bridging the gaps. Oral Presentation at The 7th International Conference on Current and Future Trends of Information and Communication Technologies in Healthcare (ICTH2017), Lund, Sweden. Sep 2017.
6. Small SS, Peddie D, Ackerley CA, **Hohl CM**, & Balka E. Patient perceptions about data sharing and privacy: Insights from Action ADE. Oral Presentation at the Context Sensitive Health Informatics 2017, Hong Kong. Aug 2017.
7. Ackerley CA, Peddie D, Small S, Bailey C, Wickham ME, **Hohl CM**, Balka E. Collaborative interventions: Engaging diverse stakeholders in a health research and implementation project to prevent adverse drug events. Oral Presentation at the Global Implementation Conference, Toronto. June 2017.
8. Peddie D, Balka E, Small S, Ackerley CA, **Hohl CM**, Cragg A, Wickham ME. Action ADE: Enabling cross-setting communication to prevent adverse drug events. Poster presentation at the 20th ACM Conference on Computer-Supported Cooperative Work and Social Computing, Portland, Oregon. Feb-Mar 2017
9. Small SS, Peddie D, Ackerley C, Balka E, **Hohl CM**. What do patients think of medication information sharing? Insights from Action ADE. Poster presented at Quality Forum 2017: Imagine Tomorrow, Act Today, Vancouver. Mar 2017.
10. Peddie D, Small S, Wickham ME, Balka E, **Hohl CM**. Designing novel health ICTs to support work, not generate it: five principles. Oral Presentation at the Information Technology and Communication for Health (ITCH) Conference, Victoria. Feb 2017.
11. Small SS, Peddie D, Ackerley C, Balka E, **Hohl CM**. Seeking balance in the privacy of digital health: exploring patients' perceptions in the development of the Action ADE platform. Poster presentation at the ITCH Conference, Victoria. Feb 2017.
12. **Hohl CM**. Repeat Adverse Drug Events as a Common Cause of Preventable Events. Medication Safety Webinar. Institute for Medication Safety/Canadian Patient Safety Institute, Toronto (National). 2017.
13. **Hohl CM**. Discussion of importance of sex and gender-based variables in the analysis of adverse drug event data. Early Career Investigators Meeting, Canadian Institutes of Health Information, Montreal (National). 2017.
14. Stockton KR, Wickham ME, Lai S, Badke K, Dahri K, Villanyi D, Ho V, **Hohl CM**. Incidence of clinically relevant medication errors after implementation of an electronic medication reconciliation process. Oral presentation at the CAEP, Whistler. 2017.
15. **Hohl CM**, Woo S, Cragg A, Villanyi D, Wickham M, Ackerley C, Scheuermeyer F. LO91: Repeat exposures to culprit drugs contribute to adverse drug events in emergency department patients. CJEM, 2017; Oral presentation at the CAEP, Whistler. 2017.
16. Woo S, Cragg A, Wickham M, Ackerley C, Villanyi D, Scheuermeyer F, **Hohl CM**. LO92: Factors contributing to the development of adverse drug events treated in emergency departments. Oral presentation at the CAEP, Whistler. 2017.
17. **Hohl CM**, Amber Cragg. Preventable Adverse Drug Events in Canadian Emergency Departments. Rounds, Centre for Clinical Epidemiology and Evaluation, Vancouver. 2017.
18. **Hohl CM**. Best EM Articles of the Decade and Why I Think So. CAEP Conference, Whistler (National). 2017.

Presentations continued...

19. **Hohl CM**, Christenson J, Trimble J. Action ADE - Medication Safety through Innovation. Presentation to the BC Ministry of Health, Victoria (Provincial). 2017.
20. **Hohl CM**. Creating a Research Program on Adverse Drug Events: WTF?!*. University of Saskatchewan, Emergency Medicine Research Day, Regina (National). 2017.
21. **Hohl CM**. The balance or a juggling act? University of Saskatchewan, Emergency Medicine Research Day, Regina (National). 2017.
22. **Hohl CM & Ellen Balka**. Action ADE: Meetings for Discovery. Presentation to the BC Ministry of Health, Victoria (Provincial). 2017.
23. **Hohl CM**, Medication Safety in 2017 - Are we Barking up the Right Tree? Grand Rounds at UBC Department of Emergency Medicine, Vancouver. 2017.
24. Balka E, Peddie D, Small SS, Ackerley C, Trimble J, **Hohl CM**. Barriers to Scaling Up Participatory Design Interventions in Health IT: A Case Study. Participatory Design, 2018.
25. Small SS, Peddie D, Cragg A, Barry K, **Hohl CM**, Balka E. Patient engagement in a health technology research program: Perspectives on process and lessons. Poster Presentation at the Canadian Association for Health Services and Policy Research, Vancouver. 2018.
26. **Hohl CM**, Egli C, Trimble J. Implementing and Evaluating Action ADE to Transform Medication Safety. CIHR, Ideathon, Ottawa. 2018.
27. Stacy E, **Ho K**. Integrating cultural humility into health care using a video on Indigenous health. Quality Forum, BC Patient Safety and Quality Council, Vancouver. Feb 2018.
28. **Ho K**, Novak Lauscher H, Cordeiro J, Mitton C, Wong H, Kharim E, Bhullar A, TEC4Home Health Innovation Community. TEC4Home: Tele-monitoring to support the transition of Heart Failure patient care from hospital to home. Putting Patients First: Partnerships for Better Health Research, BC SUPPORT Unit provincial conference, Vancouver. Nov 2017.
29. Kingdon J, Yngreso A, Novak Lauscher H, Cordeiro J, **Ho K**. Home Health Monitoring Implementation in BC: Lessons from TEC4Home. eHealth, Toronto. June 2017.
30. Kherani RB, Yao C, Collins D, Eva K, Fung A, Jamal S, Koehler KE, Meneilly G, Novak Lauscher H, Shojania K, **Ho K**. Remote Assessment via Video Evaluation (RAVVE): Video-based peer assessment to support continuing professional development. The Canadian Conference on Medical Education, Winnipeg. Apr 2017.
31. Novak Lauscher H, **Ho K**, Markham R, Pawlovich J. Real-Time Clinical Support in Emergency Medicine Network: The Robson Valley Early implementation findings. UBC Dept. of Emergency Medicine Research Day, Vancouver. Apr 2017.
32. **Ho K**, Cordeiro J, Novak Lauscher H. Telehealth for Emergency-Community Continuity of Care Connectivity via Home Tele monitoring (TEC4Home): From feasibility study to full trial of home tele monitoring for heart failure. UBC Department of Emergency Medicine Research Day, Vancouver. Apr 2017.
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34. Atkinson K, Mohsin H, Stacy E, **Ho K**, Novak Lauscher H. The Use of PhotoVoice in Health Education Action for Life (iHEAL). BC Patient Safety and Quality Council Quality Forum, Vancouver. Feb 2017.
35. Mohsin H, Atkinson K, Stacy E, Novak Lauscher H, **Ho K**. Understanding Perceptions and Use of Digital Health in Surrey's South Asian Community. BC Patient Safety and Quality Council Quality Forum, Vancouver. Feb 2017.
36. Docherty G, Francispragasam M, Silver B, Prager R, Maberley D, Lee D, **Kim DJ**. Test characteristics of point of care ultrasound for the diagnosis of retinal detachment in the emergency department. Poster presentation at the CAEP 2017 Annual Conference, Whistler. June 2017.



Kate Merchant
Research Coordinator

Quality Research in the ED? Our research program was featured in the VCH News (vchnews.ca/news)



Marco
Research Team
Mascot

Presentations continued...

37. Prager R, Sedgwick C, Lund A, Stachura M, **Kim D**, Ho B, Gutman S. Point of care ultrasound at a remote multi-day mass gathering: a prospective case series. Oral presentation at the World Association for Disaster and Emergency Medicine (WADEM) Congress on Disaster and Emergency Medicine 2017, Toronto. Apr 2017.
38. Olszynski P, **Kim D**, Chenkin J, Rang, L. The core emergency ultrasound curriculum project – 1st report from the Curriculum Working Group of the CAEP Emergency Ultrasound Committee. Oral presentation at SaskSono17, 2nd Annual Clinical Ultrasonography Conference, Saskatoon. Apr 2017.
39. **Khazei A**. Making patients SAFE again: Error reduction and performance improvement in the ED through simulation and inter-professional team training. DEM Provincial Grand Rounds Delivered, Vancouver. Feb 2017.
40. **Lindsay H**, Gallaher J. How we're improving the time to ECG in the VGH ED. Presentation at the JCC Champions of Change, Vancouver. Feb 2018.
41. **Lindsay H**. Improving the time to ECG in the VGH ED. Presentation at Quality Forum 2018, Vancouver. Feb 2018.
42. Ng B, Godwin J, Kestler A, Stenstrom R, DeWitt C, Scheuermeyer FX, Balshaw R, Buxton J, Ho V, Brar R, Aquino A, Blackburn J, Erdelyi S, Parhar R, Risi A, Chang A, Cochrane C, **Brubacher JR**, **Purssell RA**. ED Opioid Overdose Study: Prevalence of Adverse Outcomes. BC Centre for Disease Control Research Conference, Vancouver. Oct 2017.
43. Kocerginski J, **Purssell RA**, Perrott J, Li D. Massive Caffeine overdose treated successfully with intensive supportive care and high flux hemodialysis. North American Congress of Clinical Toxicology, Vancouver. Oct 2017.
44. **Purssell RA**, Godwin J, Kestler A, Stenstrom R, DeWitt C, Scheuermeyer FX, Balshaw R, Buxton J, Ho V, Brar R, Aquino A, Blackburn J, **Brubacher JR**. Emergency Department Opioid Overdose Study: Prevalence of Adverse Outcomes. CAEP Annual Meeting, Whistler. June 2017.
45. **Purssell RA**, Mathany L, Kuo M, Otterstatter M, Buxton J, Balshaw R. BC's public health emergency and naloxone administration by the BC Ambulance Service. CAEP, Whistler. June 2017.
46. **Purssell RA**, Godwin J, Kestler A, Stenstrom R, DeWitt C, Scheuermeyer FX, Balshaw R, Buxton J, Ho V, Brar R, Aquino A, Blackburn J, **Brubacher JR**. Emergency Department Opioid Overdose Study: Safety and Efficacy of Naloxone Dosing Regimens: 9th Annual Emergency Medicine Research Day. Apr 2017.
47. **Sweet D**. Introduction to Sepsis, UBC Medical School (Sepsis Block). Second year medical students, Vancouver. Mar 2017.
48. **Sweet D**. Interdisciplinary Rounds on Sepsis Management. Lions Gate Hospital, Vancouver. Feb 2018.
49. **Sweet D**. Sepsis and Septic Shock Update (In Any Environment), BC Quality Forum. Hyatt Regency, Vancouver. Feb 2018.
50. **Sweet D**. Ill Believe It When I "Vitamin C" it, Canadian Critical Care Conference. Four Seasons Hotel, Whistler. Feb 2018.
51. **Sweet D**. Modern Controversies in Septic Shock, Riding the Waves of Primary Care. Fairmont Orchid Hotel, Honolulu, Hawaii. Nov 2017.
52. **Sweet D**. Sepsis and Septic Shock Update, Riding the Waves of Primary Care. Fairmont Orchid Hotel, Honolulu, Hawaii. Nov 2017.
53. **Sweet D**. Expert Review of Septic Shock Cases/ Sepsis and Septic Shock Review, , Refresher Course for General Practitioner Anesthetists. Fairmont Hotel, Vancouver. Oct 2017.
54. **Sweet D**. Sepsis and Septic Shock Update. CAEP National Conference, Whistler. June 2017.
55. **Sweet D**. Controversies in Early Sepsis Management- Part 2. University of Washington 5th Pacific Northwest Sepsis Conference, Seattle. Mar 2017.
56. **Sweet D**. Sepsis Panel Difficult Cases. University of Washington 5th Pacific Northwest Sepsis Conference, Seattle. Mar 2017.
57. **Sweet D**. Sepsis Guidelines-Update. Critical Care City Wide Journal Club, Vancouver. Mar 2017.
58. **Sweet D**. Sepsis: Putting it all together based on evidence. Alaskan Hospital Association Quality Safe Table. Anchorage, Alaska. Feb 2017.
59. **Sweet D**. Early Recognition and Treatment of Sepsis-The British Columbia Approach. Alaskan Hospital Association Quality Safe Table. Anchorage, Alaska. Feb 2017.
60. Liu C, Yoo J, **Trojanowski J**, Dullemond K, Renschler C, Griesdale D, **Brubacher JR**. Implementation of an Intubation registry within a Canadian Tertiary-Care Hospital. Presented during the Health Care Research Session, UBC, Vancouver. 2017.
61. Yoo J, **Trojanowski J**, Dullemond K, Liu C, Griesdale D, **Brubacher JR**. Development and Implementation of an Intubation Registry within a Canadian Tertiary-Care Hospital. Departments of Emergency Medicine and Critical Care Medicine, UBC, Vancouver. 2017.

Research Personnel

Director

Jeff Brubacher (Jbrubacher@shaw.ca)

Investigators

Corinne Hohl	(Adverse Drug Reactions)
Chad Kim Sing	(eHealth)
David Sweet	(Sepsis)
John Tallon	(Pre-hospital Care)
Jeff Brubacher	(Road Safety)
Kendall Ho	(eHealth)
Paul Huang	(Syncope)
Roy Purssell	(Poison Surveillance)
Riyad Abu-Laban	(Research Education)

Advisory Committee

Brian Chung
Corinne Hohl
Chad Kim Sing
Jeff Brubacher
Riyad Abu-Laban
Roy Purssell

Research Coordinators

Angela Aquino
Kate Merchant
Rupinder Brar
Vi Ho



Research Coordinators

ED Staff Involvement

Our research would not be possible without the involvement and ongoing support from Emergency Department Nurses, Unit Clerks, Admitting Staff and Physicians. We are fortunate to have an amazing team that continues to engage in research while providing top notch patient care.



Student Involvement

Students play a valuable role in our research division, and we are grateful for the dedicated and motivated individuals who have donated their time. In turn, students gain exposure to emergency medicine and clinical research.

Medical Students

Andrew Chang
Andy Jiang
Amelie Beauchamp
Ben Ng
Chris Cochrane
Christine Liu
Chris Shamatutu
Kia Dullemond
Kelly Huang
Rehman Jinah
Tina Chiang
Yuda Shih

Co-op Students

Cetareh Mohsenzadeh-Green
Tiffany Chih
Sim Pattar
Victoria Purcell
Candace Yip
Angela Peng

Student Volunteers

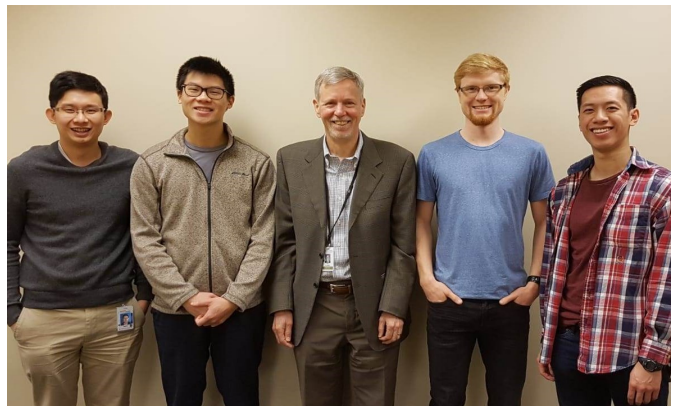
Alessia Risi
Cherry Lam
Maya Khazei
Ryan Yip
Sheryl Htoo

Work Learn Students

Devine Calanog
Lisa Zhang
Louise Meddings
Sarah Wong



CAN –TBI Team



Opioid Study Team



Research Team Social Activities