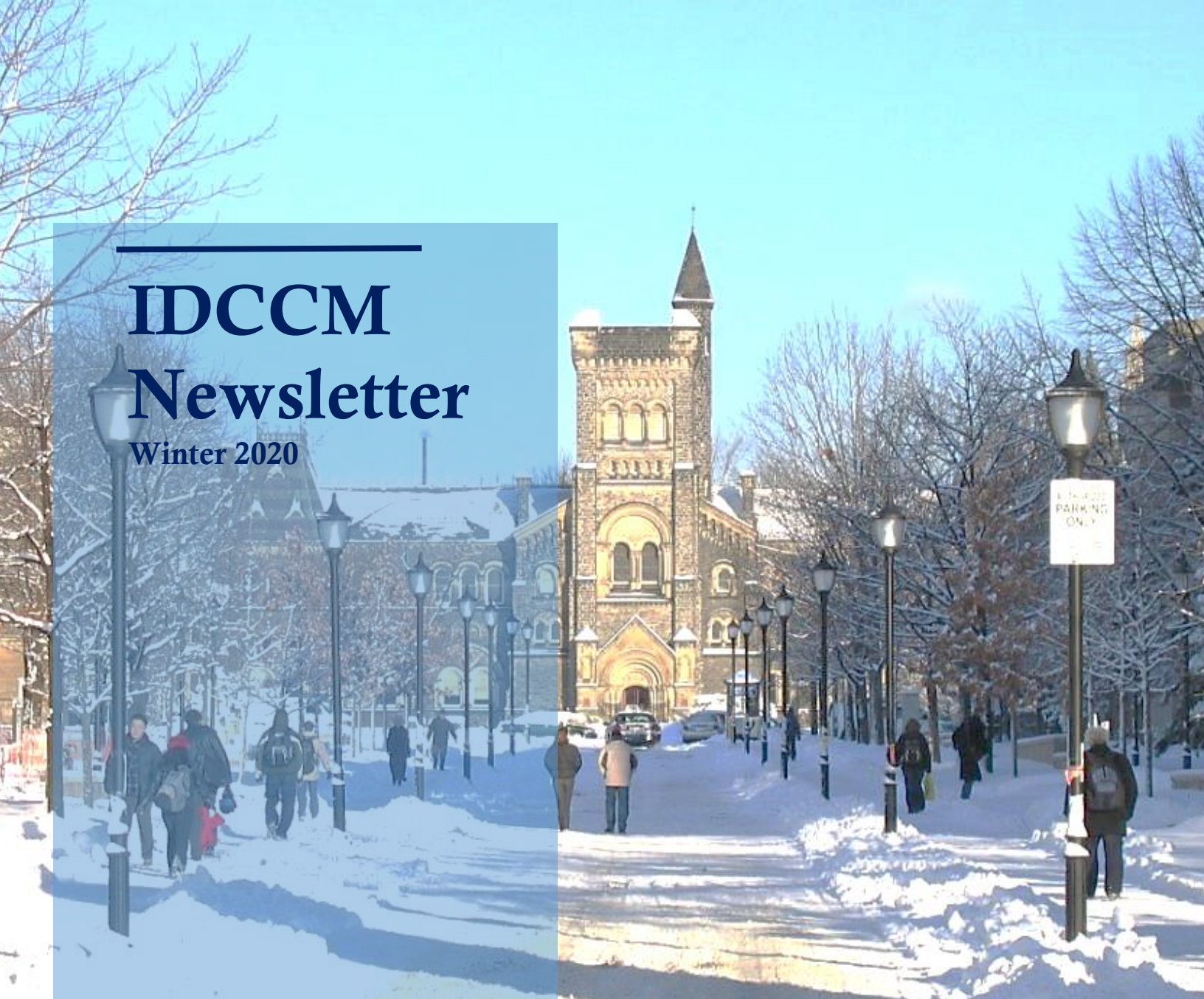


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# IDCCM Newsletter

Winter 2020



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Department News, Academic Events  
Awards, Grants, & Recognition  
Publications & many more...

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Interdepartmental  
Division of Critical  
Care Medicine



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# CONTENTS

<b>Message from the Director</b>	<b>3</b>
<b>Awards and Recognitions</b>	<b>4-5</b>
<b>Grants Received</b>	<b>6</b>
<b>Accomplishments</b>	<b>7</b>
<b>PCCM Accreditation</b>	<b>8-9</b>
<b>TACTICS – THSC</b>	<b>9-10</b>
<b>Adult Education Update</b>	<b>11</b>
<b>Honour for Brian Kavanagh</b>	<b>12</b>
<b>Updates from Nepal</b>	<b>13</b>
<b>COVID...news</b>	<b>14</b>
<b>Flying during COVID: A Reflection</b>	<b>15</b>
<b>REMAP-CAP...</b>	<b>16</b>
<b>Research Program updates</b>	<b>17-19</b>
<b>IDCCM publications</b>	<b>20- 28</b>

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## MESSAGE FROM THE DIRECTOR

Dear all,

What a surprising, stressful and challenging world! At the time of writing, COVID cases are going down slightly in the GTA but we are also opening more beds to be prepared for the possible consequences of the new variants. Who knows what will come next!

As a community, the critical care group has been put under major and sustained pressure and has been responding amazingly well. We have saved the lives of many people affected by COVID-19 and we should be proud of it, but, sadly, we also have seen too many individuals dying from COVID-19.

As leaders, we are cognizant that the clinical burden and the workload are coming on top of all other activities while personal life is greatly impacted, and this combination results in a lot of personal stress. Some of you may find it difficult -or very difficult- and in these unprecedented times, it is totally normal to experience personal suffering! Please tell us when things are going wrong, don't stay alone! We have thoughts for our fellows who are on the front-line, and special consideration for our international fellows who have to live this experience away from their home. Thanks to all of you for all the work you are doing! I want to also thank Shelly Dev, who is doing a really important job trying to get everybody connected.

In the midst of this situation both the pediatric and the adult critical care programs have been accredited, even if we are still waiting for final recommendations. This is amazing and a lot of kudos are deserved for our education teams. Thanks Briseida and Dave!

In a virtual meeting for the Alliance Day, we have listened to some extraordinary presentations done by IDCCM members describing innovative solutions for the pandemic. It was really a rewarding experience to be able to get a flavor of all these initiatives aimed at helping the health care system and our patients. Margaret had this idea of introducing some artistic components into it, which offered a great parallel between academic and artistic activities (to heal!). Research has been extremely active (see some major achievements in the publication list). A special mention to research organization / networks like REMAP CAP. It is probably one of the first time in the history of modern medicine that we get answers to major clinical questions during the course of a pandemic. It needed special preparation and thinking ahead, and it is worth acknowledging the works of people like John Marshall who have been pushing to make these things possible since many years. Kudos, John!

Congratulations to all of you getting awards and successful research grants.

You are an extraordinary group!

Enjoy this Newsletter and I am confident that I will write my next editorial in a different context!

**Laurent Brochard, MD**

Division Director, Interdepartmental Division of Critical Care Medicine

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# Awards and Recognition

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**Dr. Najma Ahmed** received the 2020 CMA Sir Charles Tupper Award for Political Advocacy in recognition of her leadership, commitment and dedication in advancing CMA goals and policies through grassroots advocacy.

**Dr. Hannah Wunsch**, department of anesthesiology and pain medicine in the Temerty Faculty of Medicine and Sunnybrook Research Institute, Sunnybrook Health Sciences Centre, received a tier two Canada Research Chair in critical care organization and outcomes.



**Dr. Dominique Piquette** received the 2020 Frank S. Rutledge Award of Excellence in Critical Care Teaching.

**Dr. Ian Randall** won the UofT Department of Anesthesia Interprofessional Education Award at Annual Shields Day.



**Dr. Claudia Dos Santos** has been appointed as the Robert and Dorothy Pitts Chair in Acute Care and Emergency Medicine, a Hospital-University endowed Named Chair at St Michael's Hospital University Health Toronto.



**Dr. Victoria McCredie** and **Dr. Jeff Singh** were awarded Presidential Citations at the Neurocritical care Society Annual Meeting for their contributions to the Society. **Dr. Jeff Singh** was inducted as a Fellow of Neurocritical Care by the Neurocritical Care Society for his leadership and service within neurocritical care.



**Dr. Elizabeth Wilcox** and **Dr. Andrew Steel** both received individual Donation Champion awards from Trillium Gift of Life Network given to healthcare professionals who are exceptional advocates for organ and tissue donation.



**Dr. Michael Sklar** received the 2020 Postgraduate Research Awards.

**Dr. Melany Gaetani** received the 2020 Postgraduate Medical Trainee Leadership Awards. This leadership award is an indication that her outstanding initiatives and contribution to the program exemplify the qualities for which this award was created.



**Dr. Amanda Formosa** received the 2020 Postgraduate Research Awards.

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## Grants Received

**Dr Damian Ratano** (supervised by Dr Eddy Fan) received a PSI Foundation Clinical Research Grant in January 2020. The amount of 196'000\$ is dedicated to a research program entitled New Strategies to Improve Anticoagulation and Blood Resources Management during Extracorporeal Membrane Oxygenation In Adult Patients including three studies (1 retrospective, 1 observational, 1 pilot-RCT). After months of hold on clinical research due to COVID-19, the TEGMO study (Thrombo-Elastography Guided Management of ECMO, NCT04268940) is now at full speed with 31/60 patients included over 6 months. A second important study the A-FREE ECMO (Anticoagulation Free VV-ECMO for Acute Respiratory Failure NCT04273607) is about to start. This study recently raised interest from colleagues in the USA, fostering a novel international collaboration.

**Dr. John Granton** and **Dr. Jamie Hutchison** (co-principle applicants) received an *in kind* peer reviewed Investigator Initiated Research grant for the inhaled Nitric Oxide for Cardiac Arrest in Pediatrics and Adults (iNOCAPA): A pilot randomized controlled trial and translational biology study from Mallinckrodt Pharmaceuticals Inc. in September, 2020. They had previously received a grant from the Heart and Stroke Foundation of Canada. The company will supply with iNO and placebo gas tanks and *in kind* education and training. The study will be done in the Critical Care Units at SickKids, TGH, TWH and SMH. Co-investigators include Michael-Alice Moga, Alexandra Marquez, Victoria McCredie, Andrew Baker and Laurie Morrison. **Dr. John Granton** also working with Jonas Mattsson and Igor Novitzky on a study of placenta derived decidual stromal cells in COVID -19 ARDS. This is a world first pilot study of these cells in ARDS - recruiting 20 patients to inform safety and feasibility.

**Dr. Briseida Mema** received the 2020 Fall Medical Humanities Education Grant. Her submission Evenings of Art: A Window to the Clinician's Psyche was selected in the Fall 2020 competition.



### **Dr. Aleksandra Leligdowicz have a baby boy! Congratulations!**

Aleksandra and her Husband Mark welcomed their son Francis Stefan Chandy on January 3<sup>rd</sup>, 2021 in San Francisco. Everyone is home and doing well, with siblings Leo and Margo excited about their new brother. Attached a photo of Francis and his two older siblings

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## Accomplishments



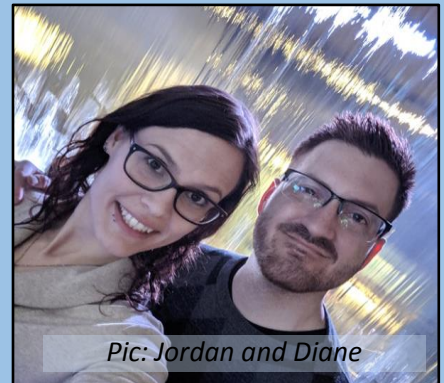
IDCCM is pleased to announce and congratulate Dr. Barbara Haas as being selected as an **IDCCM Scholar, for 2021!** She was selected among several very strong applications by an independent jury.

The IDCCM Scholars Program is to provide support and recognition for future research leaders in critical care. This represents a highly prestigious nomination. The focus of Dr. Haas' research tackles a unique but extremely important area: understanding the impact of critical illness due to acute injury on long-term clinical and patient-centred outcomes. She has secured CIHR funds as PI on her proposed research focus. Number of peer reviewed papers since faculty appointment in 2016; 8 first or senior author publications, 13 middle author publications. Three CIHR operating grants as principal or co-principal investigator in last few years (>750,000\$); 3 grants as co-investigator. She has received numerous education awards.

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## A New Academic Position for one of our Alumni!

As many who know me are aware, I have had a somewhat unconventional but rewarding path leading to my critical care training in Toronto. After briefly working as a pharmaceutical chemist, I attended medical school at the University of Calgary where I originally thought I would pursue nephrology or infectious diseases as a specialty. Diverging from these initial aspirations, I completed residency in general surgery at Dalhousie University in Halifax, during which time I met my amazing wife, Diane. I was privileged to be able to follow this with fellowships in trauma/acute care surgery and critical care medicine here in Toronto. I have had the continued opportunity to work with my excellent colleagues as



a clinical associate in trauma while also starting a master's degree in medical science at the Institute of Medicine Science. My research interests focus on management strategies and institutional factors associated with adverse clinical outcomes in acute care surgery and trauma patients.

I am excited to announce that I will be joining the Sections of General Surgery and Critical Care Medicine at the University of Manitoba in March. Simultaneous with his new position, I will be completing my master's degree. I will miss all the close friends that I have made here, and I am immensely thankful to have had the opportunity to learn from such an exceptional group. I wish everyone here nothing but the best, and I look forward to seeing you all again in the future.

**Dr. Jordan Nantais**  
IDCCM Alumni

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## Royal College External Accreditation – Fall 2020

Like many other programs at the University of Toronto, the Paediatric Critical Care Medicine (PCCM) training program participated in Royal College of Physicians and Surgeons of Canada external accreditation review process virtually in December 2020. Our trainees, faculty, administrative staff, and others in the training program worked incredibly hard and extraordinarily well towards preparing for the external review. On behalf of the PCCM program, I would like to extend my sincere thank you to all trainees, staff and faculty for all of their efforts during a very challenging time.

Our program received the outcome that we expected – Recommended Status: Accredited Program with a follow-up by regular review- and we are very proud of this achievement! As a competitive program, our standards are very high and our goal is to train and graduate amazing Pediatric Intensivists nationally and internationally. The outcome of this accreditation helps us to continuously aspire towards better outcomes and processes.

On behalf of the program, I would like to thank Dr. Floh, Associate Program Director, for his help and support in every aspect of the training program; Dr. Guerguerian, Director of Research, for the amazing processes developed and implemented for our trainees to excel academically; Dr. Kirsch, Wellness Director, for leading a robust and multifaceted program that looks after our trainees' work-life integration; Dr. Annich, Director of CCRT, for her flexibility in adjusting rotations to satisfy different trainee goals, and co-leading the trainees' training and research in Quality Initiatives. I would also like to thank Dr. Christian, Chair of the Clinical Competence Committee, for taking on a new role and building unique processes to implement the CBD program within the department; Dr. Schwartz and Dr. Gilfoyle, our department leadership, for their constant support of the education program; and lastly, all of our faculty for their commitment towards making our training program nothing short to excellent. I would also like to recognize and thank our administrative team – Ms. Hamilton, Syed and Perri – for all of their hard work and continuous support for our program. Most importantly, I want to thank all of our trainees that participated in the review (MOH and SEAP) and our Chief Fellow, Dr. Anderson, for his leadership, enthusiasm and his initiative in creating a culture of caring, fairness, and excellence amongst the trainees. As mentioned by our surveyors: "they enjoyed meeting all of us".

Throughout the review, the surveyors assessed our program and praised our national leadership as an education program. This included creating a national simulation assessment (i.e., TACTICS), developing and implementing a Medical Humanities Curriculum, implementing an in-situ simulation program (via Immersive Reality), and implementing a robust wellness program for focusing on trainee work-life balance and integration.

As a program, we strive towards achieving excellence and embrace our imperfections. Over the last few years, we dedicated a lot of time and effort towards preparing for this important process. Now that the preparatory work is over and we received a major validation of our work, we can work towards focusing and addressing some "Areas for Improvement". One of these includes further developing our POCUS curriculum; Dr. Rodriguez, Dr. Floh and I will work to make our POCUS program robust. Another area for improvement focuses on further developing our Clinical Competence Committee; Dr. Christian and I will work towards improving the processes the Competence Committee uses to make decisions.



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I started my role as a Program Director in January 2019, and this is my *first* accreditation cycle. I am very pleased with the outcome of this accreditation review and look forward to continue leading the program towards excellence, with the dedication of all involved to keep our promise: To train excellent pediatric intensivists that will advance the field of pediatric critical care medicine globally.

**Briseida Mema**  
*Associate Professor  
Department of Paediatrics  
University of Toronto  
Program Director*

*Paediatric Critical Care Medicine Residency and Fellowship Training Program*



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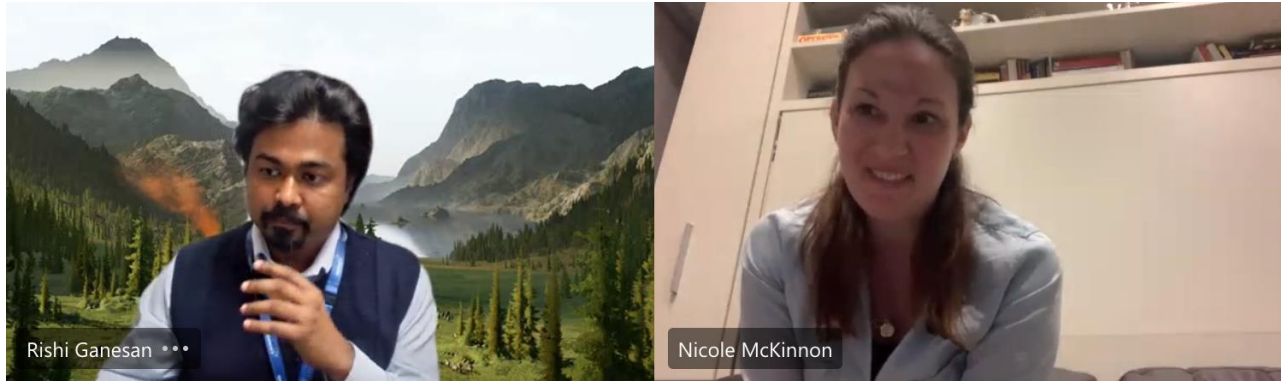
## TACTICS 2020

### Paediatric Critical Care Medicine: The Hospital for Sick Children

On November 17th, 2020, SickKids hosted the 4th annual TACTICS (Training & Assessment of Clinicians in Teams in Intensive Care through Simulation). In previous years, this National Pediatric Critical Care Medicine Assessment day was organized as an intensive one-day simulation program, however due to the pandemic, it was held virtually for the first time.

The scenarios were developed, facilitated and assessed by 22 Canadian faculty across all training programs. This year, a total of 45 trainees across eight Canadian Paediatric Critical Care Medicine training programs attended virtually and were divided into eight primary teams. The teams rotated through eight virtual scenarios, which included the following: virtual communication with family members and telehealth, case conference for a complex patient, post-operative cardiac complications, ECMO troubleshooting, mechanical ventilation, amongst others. The day concluded with an extended debriefing session, in which all attendees (trainees, facilitators and faculty) participated.

In TACTICS 2019, we introduced the Afrothite Kotsakis award in honour of our friend and colleague Dr. Kotsakis, whose vision of a national simulation day was instrumental in the establishment and organization of a successful event. This year, the award recipients of the 2020 Afrothite Kotsakis award were the Neuro-Critical Care Case Facilitators who have won the award for the second time in a row. Congratulations to Drs. Nicole McKinnon and Rishi Lalgudi-Ganesan!



*The NeuroCritical Care station facilitators Dr. Lagudi and Dr. McKinnon, winners of Afrothite Kotsakis award are still smiling after 5 hours of virtual simulations.*

Overall, the day was a success! Thank you to the organizing team, who organized the day and planned the simulation scenarios under the leadership of Dr. Mema and Dr. Gilfoyle, in conjunction with Program Directors across the country. A special thank you to our senior fellows Dr. Melany Gaetani and Dr. Jessica White, who were actively involved in the organizing committee and oversaw the day. As a result, post-event evaluations suggested that more than 95% of the attendees enjoyed their experience, and all participants look forward to participating once again and would recommend for their colleagues to join as well!



*Participants and facilitators at the extended debrief at the end of the day tie together the key learning objectives.*



*Facilitator performs simulation based on participants' instructions at the Post-Op Cardiac Complications station.*

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# Education Update for Adult CCM

This fall Adult CCM had a Virtual on-site review by the Royal College as part of our accreditation process. On site reviews occur on a roughly 8 year cycle. The reviewers and the Royal College Specialty Committee reviewed a comprehensive suite of documents that were prepared over the last year for



our accreditation. The process is extremely thorough and looks at all aspects of our training program. Although we are still waiting on our final transmittal letter from the Royal College our Program was fully accredited with a regular review scheduled for 2028. This is a fantastic outcome and is a credit to our trainees and faculty.

The reviewers were impressed by the scholarly opportunities for our trainees as well as the flexibility of the program in accommodating learner needs. Special thanks to everyone who was able to meet with the accreditors or helped with document preparation. The team at PGME was tremendous in their support both in document preparation and organizing the virtual on-site review. A special thanks is due to Simon Chung (photo) who is now an accreditation expert. He prepared and formatted reams of documents and kept everything on time and organized. I look forward to sharing the final comments from the Royal College when they are made available to us.



Our last Academic Half Day of the year took on a festive tone under the direction of Elif Çizmeçi, Vatsal Trivedi, Dominique Piquette, and Shelly Dev. Touching videos and lively games were interspersed with the repartee of Dr Shelly Dev. The virtual catering was arranged by Simon Chung who displayed Santa like efficiency in delivering Starbucks cards. Thanks to all for a great set of rounds.

The results of the CaRMS MSM match have now been finalized. Please join me in congratulating our incoming Adult Critical Care Medicine trainees who will be joining us in the 2021 academic year.

Dr. Abdullah Sakkat (IM and Resp)

Dr. Eugenia Lee (IM)

Dr. Karishma Desai (IM)

Dr. Nasim Zamir (IM)

Dr. Candice Griffin (IM)

Dr. Naheed Jivraj (AN)

Dr. Mathieu Francois (NSX)

Dr. Varuna Prakash (IM)

**David Hall, MD**

*Assistant Professor, Department of Medicine  
Program Director for Adult Critical Care Medicine  
University of Toronto*

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# Honour for Brian Kavanagh



**Dr Brian Kavanagh** was a Clinician-Scientist at the Department of Critical Care Medicine, Hospital for Sick Children, and Past Chair, Department of Anesthesia, University of Toronto. He was an astute clinician, a brilliant scientist, and a passionate mentor. His contribution in the field of lung injury has been recognised worldwide. Sadly, Dr Kavanagh passed away on June 15, 2019.

Honouring his legacy, in December 2020, the inaugural plenary address of the 10<sup>th</sup> World Congress, Pediatric Critical Care was named after him. The Congress (WFPICCS20; <https://wfpiccs.kenes.com/>), originally scheduled to happen in Mexico City was conducted virtually and attended by over 2000 delegates from 101 countries with over 190 speakers. The Congress is conducted under the auspices of The World Federation of Pediatric Intensive and Critical Care Societies

(WFPICCS; <http://www.wfpiccs.org/>) which was established in Paris, in September 1997, as part of the vision of Dr Geoffrey Barker. Brian was the proud awardee of the Geoffrey Barker Chair in Critical Care Medicine. Since 1997, the World Federation has grown to include 52 national, international, and regional member societies representing over 100,000 pediatric and neonatal critical care physicians, nurses and allied health care workers across the globe.

The Brian Kavanagh Lecture, titled ‘Protective Lung Strategy: Does it Work?’ was delivered by Dr Robinder Khemani a leader in the field of Pediatric Respiratory Critical Care and Associate Director of Research for the Department of Anesthesiology and Critical Care Medicine, Children’s Hospital of Los Angeles, US (<https://www.chla.org/profile/robinder-khemani-md>).

This recognition of Dr. Kavanagh’s contribution to critical care and the practice of mechanical ventilation is a matter of pride and honour for his colleagues in the Department of Anesthesia, Department of Pediatrics and Interdepartmental Division of Critical Care Medicine, University of Toronto.



*Picture: Dr. Brian Kavanagh with his lab members*

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## Updates from Nepal



Dr. Diptesh Aryal completed his Clinical Fellowship in Critical Care at the University of Toronto, Interdepartmental Division of Critical Care and St. Michael's Hospital in the year 2014 -2015. Currently, he is working as ICU Coordinator at Nepal Medicity Hospital and leading the critical care team taking care of COVID19 patients. Since his return to his home country, Diptesh has done some significant work in the field of critical care research in Nepal to improve critical care education, the quality of patient care and to develop research projects and infrastructure in order to build an understanding of critical care needs and establish Nepal as an important contributor to research within the global critical care community.

To achieve these goals, Diptesh, along with his colleagues has established the Nepal Intensive Care Research Foundation, which in collaboration with Mahidol Oxford Tropical Medicine Research Unit (MORU) aims to implement hospital-based ICU Registry in Nepal. The initiative that he leads adapts the platform from the electronic registry method used in the ICU registry from the Asian Critical Care Registry Network (CRIT Care Asia). Along with other critical registries in South and South-East Asia, NICRF is a member of 'Critical Care Asia'. A Wellcome Trust and MORU project, the Collaboration for Research, Implementation and Training in Intensive CARE (CRITICAL CARE Asia), seeks to improve the quality of critical care in the region. The Nepal collaboration aims to introduce the first ever electronic ICU registry to 1) understand and assess ICU capacity in terms of logistics, infrastructure and human resources, 2) describe resource utilization, 3) assess the quality of existing care in ICU, 4) identify areas that required quality improvement initiatives in order to improve outcomes, and 5) provide a benchmark, to compare performance triggered registry-based research in acute and critical care and to support policy decision making. The Nepal ICU Registry is currently implemented at 6 hospitals in Nepal and is in the process of adding more ICUs soon.

In recognition of his important contributions to the Critical Care Asia network and the development of the ICU Registry in Nepal, Diptesh has been awarded an Honorary Physician position in Critical Care at the Mahidol-Oxford Tropical Medicine Research Unit in Thailand. Diptesh is also working as Principal Investigator for REMAP-CAP Trial in Nepal. The trial has been embedded in the new ICU registry platform and currently is being conducted in four ICUs in Kathmandu, Nepal.

Diptesh is pursuing PhD from D'Or Institute for Research and Education (IDOR), Rio de Janeiro, Brazil. His PhD project aims to identify the clinical characteristics, risk factors and attributable outcomes of unplanned ICU readmission in a LMIC setting as well as to identify strategies to reduce the incidence and impact of unplanned readmissions on patient morbidity, mortality and resource availability. To achieve these research goals, the recently implemented (cloud based) critical care registry and community of practice for improvement and research (NICRF) active across ICUs in Nepal will be leveraged.

Diptesh extends his best wishes to all his friends and colleagues in Toronto and hopes everyone is staying safe and well during these challenging times. He wishes to extend an invitation to collaborate on research projects with Nepal to those who may be interested and he hopes such collaborations will show how very different countries can learn from each other and will serve to improve the provision of critical care in Nepal and other LMICs around the world.

To know more about some of the exciting work that these groups are leading, follow them on twitter: @diptesharyal @AsiaCritical @NepICRF



## Canadian company turns shipping containers into portable operating rooms.

A Canadian company is helping to limit the coronavirus pandemic's strain on the health-care system by turning old shipping containers into portable operating rooms and intensive care units.

Hamilton, Ont.-based Fero International customizes these containers into a variety of uses, depending on what their client wants. But as COVID-19 cases surge, the company has been using their innovations to help with front-line needs. Inside the unit, the company has built a fully functioning hospital room that can be used for operations or act as an ICU, which the company believes will increase the number of patients that can be treated and can help avoid the cancellation of other hospital procedures.

"Our hope is that the deployment of these will allow hospitals to keep going so we don't have to shut down," Fero International CEO Sabrina Fiorellino told CTV News. While COVID-19 hospitalizations are down compared to the initial wave back in the spring, the fear remains that this second wave could still be just as deadly. According to [CTVNews.ca's tracker of COVID-19 cases in Canada](https://www.ctvnews.ca/health/coronavirus/canadian-company-turns-shipping-containers-into-portable-operating-rooms-1.5142538), there were 975 new cases of COVID-19 and 14 additional deaths on Monday, though several provinces did not report due to the Thanksgiving holiday. Fero has also teamed up with the University Health Network in Toronto to make sure the units work up to doctors' standards.

"This allows us to respond very quickly to a mass casualty event or a natural disaster event," said Dr. Laura Hawryluck, a critical care medicine professor at the UHN.

The air pressure inside can be controlled to help protect the patient, and the air coming out of the units are filtered to prevent infecting people outside.

Fiorellino began the company as a way of giving back to the healthcare community after her mother's life was saved with a double-lung transplant. Her brother and sister-in-law are also front-line workers. Fiorellino said the units are transported to their destination by train or transport truck. Her vision is having units combined to create as many as 100 additional beds for hospitals in need of the extra capacity.

**Reference:** <https://www.ctvnews.ca/health/coronavirus/canadian-company-turns-shipping-containers-into-portable-operating-rooms-1.5142538>

Help limit the  
spread. Download  
the COVID Alert app.



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## Flying during COVID: A Reflection

The travel experience in this unprecedented year seems to far from everyone. I would say that it was very hard year to make it happen, as our desire travelling to dream destination. Even the essential travel had to substantially coordinate many offices with complexity; however, me as one of international fellows had experienced under numerous uncontrolled situations as lottery winner.

Between April and July, there was the peak of aviation industry problem that affected directly to my journey to Canada. It was not only flight that had been canceled all the time, but there had no flights to even advance reservation. Consequently, I had been surfing the internet and eventually found only one flight in July that could take me out but not warranted. That period, flights had been easily canceled depending on daily COVID-19 news; however, I determinedly continued to pack my stuff. I believed that travelling this year, you will prepare your stuff differently as I did. My luggage shared some of its area for surgical masks, alcohol sanitizer and face shield like their necessity.

Finally, the journey had come true no matter what it will be happen in the future, I felt I ready to go! Flight from Bangkok to Toronto took longer than normal, more than 30+ hours with 3 layovers. During flight, I found something in common impressively among passengers that was diligent hand sanitization. Unfortunately, there were no pleasure moments as previous, the layover was very quiet and only vending machines opened.

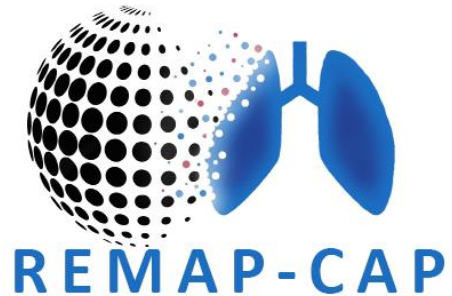
However, I have captured some photos that It might not happen again when back to normal. On board, there were less than 20 passengers, and my cabin took only 4 passengers. Such a great journey ever, it was incredibly comfortable more than taking first class experience, I guessed.



**Pink Vorakamol Phoophiboon**  
International clinical fellow  
St. Michael's Hospital

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## REMAP-CAP Anticoagulation Domain Paused for Severe State



The REMAP-CAP International Trial Steering Committee met with our Data Safety Monitoring Board. They have recommended pausing the anticoagulation domain (unfractionated or low molecular weight heparin) for all patients in the severe state (receiving respiratory or cardiovascular organ support, regardless of location) but continuation of the domain for those in the moderate state – those patients, including ICU patients, who are not receiving organ support at the time of randomization. This recommendation is based on a conclusion that anticoagulation of patients in the severe state is highly likely to be futile, and may raise safety concerns. The domain has now been suspended in the Spiral database for the severe state, but is still available for patients in the moderate state. We are reviewing the data, and will provide more specifics as soon as we have them.

We are recommending that patients who have been recruited to full anticoagulation in the severe state have the treatment stopped unless there is a separate indication for anticoagulation.

With more than 3000 COVID-19 patients recruited so far, and more than 6000 randomizations, REMAP-CAP is generating knowledge about the best management of COVID-19 patients at a remarkable rate. As you know, we have shown that hydroxychloroquine, lopinavir/ritonavir, and now heparin don't help patients with severe COVID-19, but that steroids do, and interleukin-6 is very likely to do so as well. We will have more information on the latter very soon.

Thank you so much for your dedication to REMAP-CAP, and to the global effort to defeat COVID-19 with clinical science. The word “unprecedented” has been over-used, but COVID-19 really is the challenge of our times, and the extent of global collaboration to meet that challenge has been inspirational. The speed with which we are learning how to care for the sickest patients is, well, unprecedented. We can take further pride in the Canadian contribution to this effort. We are deeply grateful for the wisdom and leadership of Ryan Zarychanski who, in the early days of the pandemic when we were seeing alarmingly high rates of intravascular thrombosis and pulmonary embolism in COVID-19 patients, brought the HALO trial to the REMAP platform as the anticoagulation domain. We are further grateful to Ewan Goligher and Patrick Lawler who stepped forward to build that domain, and, with Ryan, to extend it to patients outside the ICU as the ATTACC trial. We owe an enormous debt of gratitude to the patients and families who have agreed to be part of this effort to improve care for all.

**Professor John Marshall**  
University of Toronto





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# IDCCM virtual Alliance Day

## Innovation and COVID -19

December 16, 2020

The tradition of Alliance Day is to foster research relationships across the adult and pediatric teaching hospitals across the IDCCM. In the wake of COVID, we decided to put a more positive focus on some of the consequences of COVID-19, namely the development of intensely creative and innovative academic output from our pediatric and adult critical care colleagues across the city.

In a climate of intense clinical work, thirty-five attendees managed to join by ZOOM to hear a review of many of the stand-out research programs that were developed and continue to flourish during this challenging time in the global history of medicine. COVID has brought our specialty of critical care into the public consciousness like never before and the often difficult – but intensely worthwhile- work we do every day.

The afternoon began with a brief overview of some of the projects that are currently underway and extending from the novel use of volatiles for sedation in COVID in critically ill patients (**Dr. Angela Jerath- Volatile-based sedation for ICU patients: Shifting the paradigm in sedation care. The SAVE-ICU Trial**) to innovative approaches to mechanical ventilation (**Dr. Laurent Brochard - Careful ventilation in patients with ARDS induced by COVID-19 (CAVIARDS)**) and resuscitation (**Paul Dorian - Evaluation of a small gas-powered and patient-responsive automated resuscitation/ventilation (OXYLATOR)**) to novel therapeutics (**Haibo Zhang- Molecular and cellular therapies against COVID-19 using angiotensin-converting enzyme 2 (ACE2)**); (**Ewan Goligher and Patrick Lawler with Dr. Ryan Zarychanski (University of Manitoba)- The Antithrombotic Therapy to Ameliorate Complications of COVID-19 (ATTACC) Trial: A Multinational Randomized, Adaptive, Controlled Clinical Trial**). Other highlights included the detailed capture of treatments for COVID -19 (**Rob Fowler and Srinivas Murthy- Canadian Treatments for COVID-19 (CATCO) trial is the Canadian arm of WHO Trial**) and its long-term outcomes (**Angela Cheung and Margaret Herridge- the Canadian COVID-19 prospective cohort study (CANCOV)**).

**Eight presentations were chosen to be highlighted for oral presentation and these included the following:**

1. **Laura Hawryluck- Novel use of shipping containers** as an innovation for ICU/OR capacity and resource development in under-serviced areas. This project has been featured on CTV news!!
2. **Jenna Spring -Quick ICU Training** as an important educational innovation to respond to the time-sensitive need to quickly educate the non-expert MD to work in ICU.
3. **Mariella Vargas-Gutierrez - Just in time video for COVID ECMO Cannulation at SickKids** – a much needed and timely educational innovation in pediatric patients to ensure safety during this procedure.

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4. **John Marshall**- Adaptive Platform Design for Pandemic Research - REMAP CAP. Dr. Marshall has been a long-standing international leader and champion of this novel trial design which is yielding important treatment innovations in COVID- recently published in JAMA!!
  5. **Vicki McCredie**- Tracking Ventilators across Ontario- a very thoughtful and timely tracking strategy that will have enormous importance as our COVID numbers continue to rise and we access all our limited resources.
  6. **Ewan Goligher**- Global Multi-Platform RCT: The Emerging Story of Anticoagulation for COVID-19. Building on experience from Adaptive Platform Design and evaluating the important and evolving role for anticoagulation in COVID patients.
  7. **Annemijn Jonkman** – An Ultra-simple Ventilator for Pandemics – construction of a very basic but novel ventilator that may be used for transport, underserved areas and creating additional resources during a COVID surge.
  8. **Samira Mubareka**- Fun with Aerosols in Hospital and Pre-hospital Settings: the Quarantino project – a very unique look at aerosol distribution and timely and instructive observations for our daily practice in COVID.

Our guest speaker was **Dr. David Gauntlett, Canada Research Chair in Creative Innovation and Leadership**, Ryerson University who spoke on “**Creativity and Resilience**” We were honoured to have him join us and greatly appreciated his insights on how creative pursuits enhance connectedness, provide calm and foster resilience and improved mental health.

Another real highlight of the afternoon was the creation of two separate montages of creative output from the IDCCM. We listened to some gorgeous instrumental/vocal performances and beautiful pieces of collage, painting, pottery, photography etc. We are most grateful to **Dr. Shelly Dev** for creating such an inspiring and moving presentation of this work! Just what we all needed to counter those COVID blues!

Thanks so much to each of you for supporting these events and for helping to celebrate all the exceptional achievements of our University of Toronto IDCCM community!! Wishing you and your family’s safety, good health and strength as we navigate our way through this second wave. Thank you!

**SAVE THE DATE**

**Alliance Day:** April 8, 2021

**Year End celebration:** June 21, 2021

**Art Slutsky Research Day:** June 22, 2021

*Margaret Herridge  
Director of Research- IDCCM  
On behalf of the IDCCM Research Executive*



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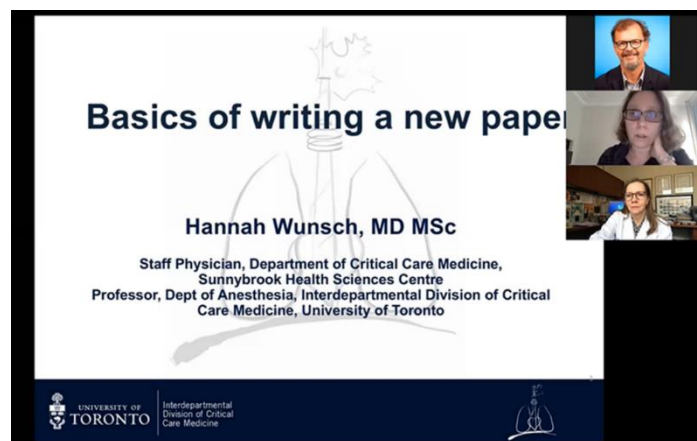
## Research Updates

### **IDCCM Visiting Professor Program**

During the fall of 2020 we welcome two Visiting Professors (Virtually) to Toronto. On September 22, Professor Alain Combes gave a talk on “Extracorporeal Life Support for severe ARDS.” Professor Combes is a Professor of Intensive Care Medicine at the Sorbonne University and head of the ICU department at La Pitié-Salpêtrière Hospital, Assistance Publique Hopitaux de Paris, France. On December 1, Professor Jason Roberts gave a talk on “Antimicrobial Dosing in Critically Ill Patients.” Professor Roberts, a Professor of Medicine and Pharmacy at the University of Queensland, joined us from Australia, delivering his lecture at 6 a.m. local time. We are very grateful to both international speakers for their time and expertise!

### **Nuts and Bolts of Research**

The Nuts and Bolts of Research (NABOR) series continued this fall, also in a virtual format. The first session on October 15 was an afternoon devoted to Nuts and Bolts of Grant Writing. This was followed on November 19 with a Nuts and Bolts of Paper Writing. Please stay tuned for spring topics.



*Picture: A screenshot from a NABOR session on November 19*

### **Clinical Research in Progress (CRIP)**

The Clinical Research in Progress (CRIP) program resumed this fall in a virtual format with two sessions. The new format involves a research presentation with detailed discussion for the first 45 minutes, followed by rapid-fire presentations by senior faculty regarding their current research projects. We plan to continue this format through the spring, and want to thank all the trainees and faculty for their participation.

Thank you!

**Hannah Wunsch**  
*Associate Director of Research- IDCCM  
University of Toronto*



# High-Impact IDCCM PUBLICATIONS

(Aug-Dec 2020)

## [Interferon Beta-1b and Lopinavir-Ritonavir for Middle East Respiratory Syndrome.](#)

Arabi YM, Asiri AY, Assiri AM, Balkhy HH, Al Bshabshe A, Al Jeraisy M, Mandourah Y, Azzam MHA, Bin Eshaq AM, Al Johani S, Al Harbi S, Jokhdar HAA, Deeb AM, Memish ZA, Jose J, Ghazal S, Al Faraj S, Al Mekhlafi GA, Sherbeeni NM, Elzein FE, Al-Hameed F, Al Saedi A, Alharbi NK, Fowler RA, Hayden FG, Al-Dawood A, Abdelzاهر M, Bajhmom W, AlMutairi BM, Hussein MA, Alothman A; Saudi Critical Care Trials Group. **N Engl J Med.** 2020 Oct 22;383(17):1645-1656.

ORIGINAL ARTICLE

## Interferon Beta-1b and Lopinavir–Ritonavir for Middle East Respiratory Syndrome

Y.M. Arabi, A.Y. Asiri, A.M. Assiri, H.H. Balkhy, A. Al Bshabshe, M. Al Jeraisy, Y. Mandourah, M.H.A. Azzam, A.M. Bin Eshaq, S. Al Johani, S. Al Harbi, H.A.A. Jokhdar, A.M. Deeb, Z.A. Memish, J. Jose, S. Ghazal, S. Al Faraj, G.A. Al Mekhlafi, N.M. Sherbeeni, F.E. Elzein, F. Al-Hameed, A. Al Saedi, N.K. Alharbi, R.A. Fowler, F.G. Hayden, A. Al-Dawood, M. Abdelzاهر, W. Bajhmom, B.M. AlMutairi, M.A. Hussein, and A. Alothman\*, for the Saudi Critical Care Trials Group†

## [Timing of Initiation of Renal-Replacement Therapy in Acute Kidney Injury.](#)

STARRT-AKI Investigators; Canadian Critical Care Trials Group; Australian and New Zealand Intensive Care Society Clinical Trials Group; United Kingdom Critical Care Research Group; Canadian Nephrology Trials Network; Irish Critical Care Trials Group, Bagshaw SM, Wald R, Adhikari NKJ, Bellomo R, da Costa BR, Dreyfuss D, Du B, Gallagher MP, Gaudry S, Hoste EA, Lamontagne F, Joannidis M, Landoni G, Liu KD, McAuley DF, McGuinness SP, Neyra JA, Nichol AD, Ostermann M, Palevsky PM, Pettilä V, Quenot JP, Qiu H, Rochweg B, Schneider AG, Smith OM, Thomé F, Thorpe KE, Vaara S, Weir M, Wang AY, Young P, Zarbock A. **N Engl J Med.** 2020 Jul 16;383(3):240-251.

ORIGINAL ARTICLE

## Timing of Initiation of Renal-Replacement Therapy in Acute Kidney Injury

The STARRT-AKI Investigators, for the Canadian Critical Care Trials Group, the Australian and New Zealand Intensive Care Society Clinical Trials Group, the United Kingdom Critical Care Research Group, the Canadian Nephrology Trials Network, and the Irish Critical Care Trials Group\*

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[Searching for the Optimal PEEP in Patients Without ARDS: High, Low, or in Between?](#)

Sahetya SK, Goligher EC, Slutsky AS. **JAMA**. 2020 Dec 22;324(24):2490-2492. doi: 10.1001/jama.2020.23067.PMID: 33295963 No abstract available.

[Effect of Hydrocortisone on Mortality and Organ Support in Patients With Severe COVID-19: The REMAP-CAP COVID-19 Corticosteroid Domain Randomized Clinical Trial.](#)

Angus DC, et al. **JAMA**. 2020 Oct 6;324(13):1317-1329.

[Association Between Administration of Systemic Corticosteroids and Mortality Among Critically Ill Patients With COVID-19: A Meta-analysis.](#)

WHO Rapid Evidence Appraisal for COVID-19 Therapies (REACT) Working Group, Sterne JAC, Murthy S, Diaz JV, Slutsky AS, Villar J, Angus DC, Annane D, Azevedo LCP, Berwanger O, Cavalcanti AB, Dequin PF, Du B, Emberson J, Fisher D, Giraudeau B, Gordon AC, Granholm A, Green C, Haynes R, Heming N, Higgins JPT, Horby P, Jüni P, Landray MJ, Le Gouge A, Leclerc M, Lim WS, Machado FR, McArthur C, Meziani F, Møller MH, Perner A, Petersen MW, Savovic J, Tomazini B, Veiga VC, Webb S, Marshall JC. **JAMA**. 2020 Oct 6;324(13):1330-1341.

[Determination of Brain Death/Death by Neurologic Criteria: The World Brain Death Project.](#)

Greer DM, Shemie SD, Lewis A, Torrance S, Varelas P, Goldenberg FD, Bernat JL, Souter M, Topcuoglu MA, Alexandrov AW, Baldisseri M, Bleck T, Citerio G, Dawson R, Hoppe A, Jacobe S, Manara A, Nakagawa TA, Pope TM, Silvester W, Thomson D, Al Rahma H, Badenes R, Baker AJ, Cerny V, Chang C, Chang TR, Gnedovskaya E, Han MK, Honeybul S, Jimenez E, Kuroda Y, Liu G, Mallick UK, Markevich V, Mejia-Mantilla J, Piradov M, Quayyum S, Shrestha GS, Su YY, Timmons SD, Teitelbaum J, Videtta W, Zirpe K, Sung G. **JAMA**. 2020 Sep 15;324(11):1078-1097.

[Association of Noninvasive Oxygenation Strategies With All-Cause Mortality in Adults With Acute Hypoxemic Respiratory Failure: A Systematic Review and Meta-analysis.](#)

Ferreyro BL, Angriman F, Munshi L, Del Sorbo L, Ferguson ND, Rochweg B, Ryu MJ, Saskin R, Wunsch H, da Costa BR, Scales DC. **JAMA**. 2020 Jul 7;324(1):57-67

[Development, Validation, and Clinical Utility Assessment of a Prognostic Score for 1-Year Unplanned Rehospitalization or Death of Adult Sepsis Survivors.](#)

Shankar-Hari M, Rubenfeld GD, Ferrando-Vivas P, Harrison DA, Rowan K. **JAMA Netw Open**. 2020 Sep 1;3(9):e2013580.

[Comparison of 2 Triage Scoring Guidelines for Allocation of Mechanical Ventilators.](#)

Wunsch H, Hill AD, Bosch N, Adhikari NKJ, Rubenfeld G, Walkey A, Ferreyro BL, Tillmann BW, Amaral ACKB, Scales DC, Fan E, Cuthbertson BH, Fowler RA. **JAMA Netw Open**. 2020 Dec 1;3(12):e2029250.

[Anesthesiologist to Patient Communication: A Systematic Review.](#)

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Tylee MJ, Rubenfeld GD, Wijeyesundera D, Sklar MC, Hussain S, Adhikari NKJ. **JAMA Netw Open.** 2020 Nov 2;3(11):e2023503.

[Extracorporeal membrane oxygenation support in COVID-19: an international cohort study of the Extracorporeal Life Support Organization registry.](#)

Barbaro RP, MacLaren G, Boonstra PS, Iwashyna TJ, Slutsky AS, Fan E, Bartlett RH, Tonna JE, Hyslop R, Fanning JJ, Rycus PT, Hyer SJ, Anders MM, Agerstrand CL, Hryniewicz K, Diaz R, Lorusso R, Combes A, Brodie D; Extracorporeal Life Support Organization. **Lancet.** 2020 Oct 10;396(10257):1071-1078.

[Temporary circulatory support for cardiogenic shock.](#)

Combes A, Price S, Slutsky AS, Brodie D. **Lancet.** 2020 Jul 18;396(10245):199-212.

[Clinical trials in critical care: can a Bayesian approach enhance clinical and scientific decision making?](#)

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[Pathophysiology of COVID-19-associated acute respiratory distress syndrome: a multicentre prospective observational study.](#)

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[Venoarterial extracorporeal membrane oxygenation to rescue sepsis-induced cardiogenic shock: a retrospective, multicentre, international cohort study.](#)

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[Time-varying intensity of mechanical ventilation and mortality in patients with acute respiratory failure: a registry-based, prospective cohort study.](#)

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[Prone positioning in non-intubated patients with COVID-19: raising the bar.](#)

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[Tissue Doppler Imaging of the Diaphragm: A Novel Approach but Too Early for Clinical Implementation?](#)

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Matthay MA, Leligowicz A, Liu KD. *Am J Respir Crit Care Med.* 2020 Dec 1;202(11):1489-1491.

[Use of Hydrocortisone, Ascorbic Acid, and Thiamine in Adults with Septic Shock.](#)

Vail EA, Wunsch H, Pinto R, Bosch NA, Walkey AJ, Lindenauer PK, Gershengorn HB. *Am J Respir Crit Care Med.* 2020 Dec 1;202(11):1531-1539.

[Role of PEEP and Regional Transpulmonary Pressure in Asymmetrical Lung Injury.](#)

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[Electrical Impedance Tomography to Detect Airway Closure Heterogeneity in Asymmetrical ARDS.](#)

Rozé H, Boisselier C, Bonnardel E, Perrier V, Repousseau B, Brochard L, Ouattara A. *Am J Respir Crit Care Med.* 2020 Oct 8. doi: 10.1164/rccm.202007-2937LE.

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[New Opioid Use after Invasive Mechanical Ventilation and Hospital Discharge.](#)

Wunsch H, Hill AD, Fu L, Fowler RA, Wang HT, Gomes T, Fan E, Juurlink DN, Pinto R, Wijeyesundera DN, Scales DC. *Am J Respir Crit Care Med.* 2020 Aug 15;202(4):568-575.

[A Comparison of Hyperoxia and Conservative Oxygen Strategies on Morbidity and Mortality in Critically Ill Patients.](#)

Taran S, Park C, Sehgal P, Hall D. *Am J Respir Crit Care Med.* 2020 Jul 15;202(2):275-277.

[Mechanical Ventilation in COVID-19: Interpreting the Current Epidemiology.](#)

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[Association of Premorbid Blood Pressure with Vasopressor Infusion Duration in Patients with Shock.](#)

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[The role for high flow nasal cannula as a respiratory support strategy in adults: a clinical practice guideline.](#)

Rochweg B, Einav S, Chaudhuri D, Mancebo J, Mauri T, Helviz Y, Goligher EC, Jaber S, Ricard JD, Rittayamai N, Roca O, Antonelli M, Maggiore SM, Demoule A, Hodgson CL, Mercat A, Wilcox ME, Granton D, Wang D, Azoulay E, Ouanes-Besbes L, Cinnella G, Rauseo M, Carvalho C, Dessap-Mekontso A, Fraser J, Frat JP, Gomersall C, Grasselli G, Hernandez G, Jog S, Pesenti A, Riviello ED, Slutsky AS,

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Stapleton RD, Talmor D, Thille AW, Brochard L, Burns KEA. **Intensive Care Med.** 2020 Dec;46(12):2226-2237.

[Mechanical ventilation in patients with acute brain injury: recommendations of the European Society of Intensive Care Medicine consensus.](#)

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[Analgesia and sedation in patients with ARDS.](#)

Chanques G, Constantin JM, Devlin JW, Ely EW, Fraser GL, Gélinas C, Girard TD, Guérin C, Jabaudon M, Jaber S, Mehta S, Langer T, Murray MJ, Pandharipande P, Patel B, Payen JF, Puntillo K, Rochweg B, Shehabi Y, Strøm T, Olsen HT, Kress JP. **Intensive Care Med.** 2020 Dec;46(12):2342-2356.

[Prone position in ARDS patients: why, when, how and for whom.](#)

Guérin C, Albert RK, Beitler J, Gattinoni L, Jaber S, Marini JJ, Munshi L, Papazian L, Pesenti A, Vieillard-Baron A, Mancebo J. **Intensive Care Med.** 2020 Dec;46(12):2385-2396.

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[From the inside out: personal journeys in intensive care.](#)

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[Clinical strategies for implementing lung and diaphragm-protective ventilation: avoiding insufficient and excessive effort.](#)

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[We've never seen a patient with ARDS!](#)

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[What have we learned ventilating COVID-19 patients?](#)

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[Prevalence, associated factors and outcomes of pressure injuries in adult intensive care unit patients: the DecubICUs study.](#)

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[Vitamin C and thiamine for sepsis: time to go back to fundamental principles.](#)

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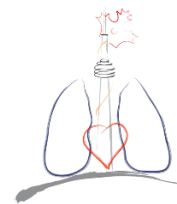
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*Thank you everyone and have a happy 2021!*