The KidSIM Pediatric Simulation Program has been training health care professionals both as individuals and as part of interprofessional teams since October of 2005. Since that time, the KidSIM Program has become a world-class program, known for delivering top-notch educational programs and conducting cutting-edge research.

The KidSIM program works to provide learners surrogate clinical experiences with pediatric patients in as close to a ‘real-life’ situation as possible through the use of high-fidelity mannequins as well as teaching space that mimics the clinical setting. In doing so, learners experience the pressures and stresses of the real situation, as they work as individuals and in teams, in order to learn more about the assessment and management of these cases. This realism is further enhanced by moulage of the patients, providing the real results of tests, and adding personnel to the case to act in various roles (parent, consultant, etc).

The goal of KidSIM is to deliver pediatric medical simulation training that will enable the ongoing professional development of providers in the pediatric health care community, including the Calgary area and rural and regional centers in Southern and Central Alberta, and Southeastern British Columbia. The value of simulation-based education has been proven in various single and multi-center research projects over the past 20 years. Based on this evidence, KidSIM focuses on implementing established and accepted simulation training practices and programs that have proven benefit for the acquisition and retention of skills, improving adherence to clinical guidelines and improving teamwork skills. Over the past several years, the KidSIM program has been increasingly using this method of education to help families and other non-clinical care providers to be better prepared for looking after children with high-risk medical situations (e.g. seizures, tracheostomies, etc.) that might occur outside the healthcare setting (e.g. home, school, etc.). We feel that increased preparedness of all providers across the continuum will result in better overall care for the children that we serve.

The KidSIM Program will honor our vision, mission & values by:
• Using medical simulation technology to enhance and assist with the ongoing professional development of front-line providers in our health care communities.
• Improving efficiency, availability and integration of simulation technology and scenarios into the educational programs of all pediatric stakeholders.
• Using medical simulation technologies to provide pediatric-focused acute care education and training to clinical areas within the ACH, as well as facilities that perform pediatric care in the Calgary Health Region, as well as facilities that perform pediatric care in the Calgary Health Region, as well as facilities that perform pediatric care in the Calgary Health Region, as well as facilities that perform pediatric care in the Calgary Health Region.
• Recruitment and facilitation of the training and development of future simulation educators providing a respectful, supportive and non-threatening learning environment for learners.
• Creating an environment for improved patient safety and quality of care through uncovering and addressing patient safety threats.
In 2016, the Royal College simulation accreditation committee unanimously granted the KidSIM Pediatric Simulation Program accreditation for a five-year period commencing January 1, 2017 and ending December 31, 2021. As an accredited simulation program, all activities developed and provided by KidSIM are automatically approved as accredited activities within the Maintenance of Certification (MOC) Program.

The Royal College of Physicians and Surgeons of Canada (Royal College) established a formal accreditation system for simulation programs with the goal of building capacity in simulation-based medical education. Simulation program accreditation is a voluntary process that reflects a simulation program’s ability to provide simulation-based education activities that model the highest administrative, educational, and ethical standards. Accredited simulation programs are internationally recognized as leaders in simulation-based learning and providers of activities that are planned and delivered according to the latest educational research to ensure patient safety and quality care provided by health professionals.

Royal College accredited simulation programs are:

- Leaders in simulation and part of a cadre of clinical educators available with expertise in CanMEDS, professional development and interprofessional simulation-based education
- Focused on interprofessionalism and patient safety
- Leaders in promoting educational and ethical standards
- Able to influence other programs and simulation systems
- Collaborators in the development of scholarship and research in education
- Supported by the Royal College through access to education experts, web-based tools, Simulation Summit, CPD Accredited Provider Conference, customized coaching
- Preferred centre for Royal College simulation-based learning activities
- Eligible for John G. Wade Visiting Professorship

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- Supported by the Royal College through access to education experts, web-based tools, Simulation Summit, CPD Accredited Provider Conference, customized coaching
- Preferred centre for Royal College simulation-based learning activities
- Eligible for John G. Wade Visiting Professorship
Vince has been the Medical Director of the KidSIM Pediatric Simulation Program at the Alberta Children’s Hospital since its inception in October 2005. Vince is an Emergency Physician at the Alberta Children’s Hospital (ACH) and a Professor of Pediatrics and Emergency Medicine at the Cumming School of Medicine at the University of Calgary. Vince is a native Calgarian, who completed undergraduate training at St. Francis Xavier University in Nova Scotia, a medical degree from the University of Calgary, then spent time training in pediatrics, emergency medicine and trauma at the University of Ottawa. He returned to Calgary in 2005 to lead the new simulation program at ACH. Since then he has also been an integral part of the growth of simulation education both locally and provincially, and has developed a national and international reputation for his work in simulation-based education.

Vince has been responsible for the significant growth of simulation at the University of Calgary both through his role in the KidSIM Program, as well as his role as the founding co-director for the Advanced Technical Skills Simulation Laboratory at the University of Calgary, being primarily responsible for the development and initial operations of a state-of-the-art surgical and clinical simulation education facility at the University of Calgary, where he was also appointed as the Medical Director for the eSIM Provincial Simulation Program with Alberta Health Services in 2019, where it is hoped that his experience and expertise will help simulation-based education, research and quality improvement to grow even stronger across Alberta. He was the founding chair of the Canadian Pediatric Simulation Network, and a board member of both the Canadian Networks for Simulation in Healthcare and Simulation Canada.

Vince has been both an invited speaker and participated on the planning committees for many of the world’s largest simulation meetings, including the International Meeting for Simulation in Healthcare, the International Pediatric Simulation Symposia and Workshops, and the Royal College of Physicians and Surgeons of Canada Simulation Summit. His main academic interests include simulation faculty development, debriefing and feedback methods, interprofessional simulation education and team training, and rural mobile outreach simulation. He is also exploring new advances in simulation-based education through innovation, including virtual, augmented and mixed reality, as well as 3D printing. Vince has led the KidSIM Team in the development of the Advanced Simulation Skills for Educators & Youth (ASSET) Curricula, including innovative work in the areas of difficult debriefing, co-debriefing and peer debriefing. Vince is regularly invited to deliver program development and simulation faculty development at centers across Canada and around the world.

Adam Cheng is a Professor with the Department of Pediatrics and Emergency Medicine at the University of Calgary. As a scientist and researcher at the Alberta Children’s Hospital Research Institute, he oversees a program of simulation-based research focused on improving outcomes from cardiac arrest. Currently, he is leading the simulation and resuscitation research program (KidSIM-ASPIRE) at the Alberta Children’s Hospital.

Adam Cheng is internationally known for his work in simulation-based education and research. He has developed numerous simulation-based curricula, both at the local and national level. His research in cardiac arrest, cardiopulmonary resuscitation and debriefing, includes a number of highly cited, simulation-based randomized controlled trials that have informed changes in international resuscitation courses. In 2018, he was lead author on the American Heart Association’s Scientific Statement on Resuscitation Education that was published in the journal Circulation. He has edited several textbooks and is lead author of the Education Science of the 2020 American Heart Association Cardiopulmonary Resuscitation guidelines.

Adam is past-chair of the International Network for Simulation-based Pediatric Innovation, Research and Education (INSPIRE), which is the largest simulation research network in the world, comprised of over 250 pediatric hospitals and simulation programs. In 2017, INSPIRE received a President Citation from the Society for Simulation in Healthcare, in recognition of outstanding contributions to advancing simulation in healthcare on a global level.

Adam has delivered various simulation or resuscitation related presentations at national and international conferences, and has received several teaching and research awards for his efforts. He has served on the Board of Directors of both the Society for Simulation in Healthcare and the International Pediatric Simulation Society. He received recognition for his contributions to the simulation community by being inducted into the International Pediatric Simulation Society’s Academy of Fellows in 2017. He currently serves as a member of the International Liaison Committee on Resuscitation, and chair of the American Heart Association’s Education Science Writing Group.

Adam has been an active international leader. He has also served as chair of several national and international conferences, including the Asia-Pacific Simulation Conference held May 2011 in Hong Kong and the International Meeting for Simulation Conference, held January 2013 in Orlando, Florida, USA.
Dr. Gavin Burgess trained at the University of Cape Town, South Africa. He moved to Canada in 2000 and worked as a Family MD in rural BC for several years before moving to Calgary and to complete his Pediatrics training and Fellowship. Gavin works in the ACH Pediatric Emergency Medicine Department and started teaching simulation with undergraduate nurses and MDs. He now teaches simulation education and runs simulations for a variety of experience levels of learners, from undergraduate to staff level participants. Gavin is also involved with teaching in the Just in Time and the Mobile Education program travelling to hospital based clinics in Southern Alberta and British Columbia.

Gavin’s areas of interest are education and faculty development. He played a key role in organizing and overseeing the Pediatric Acute Care Education Program (PACE) and teaches PALS, ATLS, and TRK courses. He is the co-chair of the Pediatric Airway Course, a multidisciplinary pediatric airway course developed at ACH focused on airway management along with PICU and Anesthesia. Gavin teaches the ASSET faculty development courses and shares his expertise at international conferences, presenting workshops with the KidSIM team. Gavin took on the role of Assistant Medical Director in 2016.

Dr. Kerri Landry is originally from Montreal, Quebec where she attended McGill University. While there, she completed her MD/ MBA, her Pediatrics’ Residency and finally her Pediatric Emergency Medicine Fellowship. During her time at McGill, her interest in simulation education was sparked when they opened the Steinberg Centre for Simulation and Interactive Learning in 2006. She quickly fell in love with sim and became an active participant and educator in their emergency program.

In 2009, she left the east, excited to join the Emergency Medicine Group at the Alberta Children’s Hospital. Once in Alberta, Kerri became an active instructor with the KidSIM program, teaching at the undergraduate, resident, fellowship, and staff levels as well as helping out with the Mobile Outreach Education program and various conferences and workshops.

Delighted by the chance to take on a more formal role with the KidSIM program, in the spring of 2016, Kerri jumped at the chance to become an Assistant Medical Director overseeing the Mobile Outreach Education program.
HELEN CATENA
Simulation Education Consultant
Helen graduated from Oxford UK with a pediatric nursing degree and after working in the UK for 2 years moved to work at The Hospital for Sick Children in Toronto. 2 years later Helen relocated to the Alberta Children’s Hospital in Calgary, working in the Intensive Care Unit since 2004. She became interested in simulation in 2006 when she started teaching in the KidSIM Program. Helen helped lead the development of the Undergraduate Interprofessional Education program as well as the Inpatient Hospital Pediatrics program. Helen formally joined the KidSIM Program part-time in 2011 as the KidSIM Simulation Education Consultant helping to coordinate all aspects of education that occurs in the program.

AMY CRIPPS
Simulation Education Consultant
Amy has a wide range of knowledge from her acute care experience in PICU and as a RRT. This helps her be able to teach any level of learner from any discipline. She has been involved in simulation since 2008 and has been essential for the success of the Just-In-Time patient simulation program that started in 2011 and continues to run bi-monthly. Amy has helped this unique delivery of simulation spread into other areas including PICU, NICU and Oncology/Pediatrics unit, making it a huge success. Amy works to organize and assist in all aspects of the program, particularly mentoring and faculty development. Amy assumed the new role of Simulation Education Consultant in 2016.

JENNY CHATFIELD
Simulation Education Consultant
Jenny is an Emergency Department nurse, her career has incorporated roles within education from a clinical nurse instructor for student nurses, to a teaching position at Mount Royal University, to most recently being a Clinical Nurse Educator in the Emergency Department. She has been heavily involved in many aspects of KidSIM since 2008 including teaching and management of portfolios such as mobile education. With Jenny’s experience and her Masters in Management Nursing she played a pivotal role as a research assistant during the Family Centered Care research study, to see how simulation can help families prepare for discharge, and has continued her interest in this project with the on-going training of families. Jenny assumed the new role of Simulation Education Consultant in 2016.

NICOLA PEIRIS
Team Lead
Nicola has worked at the Alberta Children’s Hospital since 2008. She joined the KidSIM-ASPIRE program in 2011, providing operational and research support. Nicola assumed the role of Team Lead for KidSIM in 2016 and works with the Education Consultants to oversee the day-to-day operations in the program. Nicola has managed numerous research projects since 2009. She has worked with research teams within the PICU and the KidSIM-ASPIRE Program. Nicola was the Network Manager for the International Network for Simulation-based Pediatric Innovation, Research and Education (INSPIRE), which is the largest pediatric simulation research network in the world.

KEELY PISCOPO
Administrative Assistant
Keely has a Medical Office Administration Diploma which she obtained from CDI College. Her career with AHS started in 2012 where she worked for the Regional Scheduling Offices. Keely came to the Alberta Children’s Hospital in June of 2015 where she worked for the Department of Pediatrics, Section of Emergency Medicine as administrative support for three emergency physicians. Keely has a wide array of experience with computer software, and technology troubleshooting. She brings with her talent, organizational experience, and in depth knowledge and she has been a real asset since joining our team. Keely assumed the role of Administrative Assistant in 2016.

KERANNE CRAIG
Simulation Aide
Keranne has been at AHS Supply since 2003 and moved in 2009 to work in Supply management, specifically for Alberta Children’s Hospital. This experience has been essential in how she has been able to help ensure all the labs are constantly organized and restocked for both the facilitators and the learners. She has helped organize and tidy the center and is already relied on by all of KidSIM.

Keranne’s other interest is learning to run the wide range of mannequins used for all levels of sessions so that she can be more involved in the scenarios themselves. Keranne assumed the new role of Simulation Aide in 2016.
The purpose of the Pediatric Simulation Education Committee (PSEC) is to provide leadership, expertise and guidance in relation to the dissemination of pediatric simulation education, simulation curriculum, scenario design, evaluation, and simulation research. PSEC objectives include:

- To develop, review and disseminate peer-reviewed scenarios for use within the simulation program.
- To ensure excellence in the quality of program curricula and scenarios.
- To evaluate needs assessments from various user groups and design curriculum and scenarios to support these needs.
- To encourage and champion interprofessional education.
- To support the development of education models which integrate simulation technology.
- To review summative evaluations of user groups.
- To critically evaluate education provided by the KidSIM Program.
- To advise the Medical Director of the KidSIM Program on resource needs from various user groups.
- Through the Medical Director of the KidSIM Program: To advise the Department Chair, Pediatrics, the Faculty Medical Director and the Vice President of the Alberta Children’s Hospital, the Child Health Advisory Committee, the Executive Director of eSIM, the Director of eSIM South, and the ACH Foundation about resource issues and needs in pediatric simulation.
- To provide a leadership role in experiential education related to pediatric human patient simulation in Southern Alberta, Central Alberta and Southeastern British Columbia.
- At the request of the Medical Director, KidSIM Program: To provide representation on related local, regional and provincial committees when required.
- To facilitate and support research projects incorporating pediatric human patient simulation.

GOVERNANCE

The Pediatric Simulation Education Committee:

- Dr. Vincent Grant (Chair) - Medical Director, KidSIM
- Dr. Adam Cheng - Lead, Research & Development, KidSIM-ASPIRE
- Nicola Peiris - Team Lead, KidSIM
- Helen Catena - Simulation Consultant, KidSIM
- Amy Cripps - Simulation Consultant, KidSIM
- Jenny Chatfield - Simulation Consultant, Mobile Program, KidSIM
- Dr. Ian Wishart - Section of Emergency Medicine
- Dr. Mark Gale / Dr. Michael Letal - Department of Anesthesia
- Andrea Jesney - Pediatric Intensive Care Unit
- Sherry MacGillivray - ACH Trauma Program
- Dr. Eli Gilad - ACH Transport Program STEP Team
- Dr. Suzette Cooke - Section of Hospital Pediatrics
- Corey Dowler – PACU
- Karen Bibaud – PACU
- Jennifer Davoust - Research Coordinator, KidSIM-ASPIRE
- Connie Abbey – NALS Program Coordinator
- Dr. Sharron Spicer - Child Health Safety Committee

EDUCATION COMMITTEE

Dr. Jennifer Davoust - Research Coordinator, KidSIM-ASPIRE
Fatemah Qasem – KidSIM Fellow
Aida Darweish – KidSIM Fellow
Ryan Wilkie – KidSIM Fellow
Ryan Iwasiw – KidSIM Fellow
Dr. Suzette Cooke – Section of Hospital Pediatrics
Corey Dowler – PACU
Karen Bibaud – PACU
Jennifer Davoust - Research Coordinator, KidSIM-ASPIRE
Connie Abbey – NALS Program Coordinator
Dr. Sharron Spicer - Child Health Safety Committee
TEAM

ADMINISTRATION
Vincent Grant
Adam Chang
Nicola Petin
Helen Prins
Amy Cripps
Jenny Chalfield
Kerrie Grant
Kenny Pasco
Keri Lansley
Gavin Burgess
Jenny Goddard

BIOMED SUPPORT
Dan Dupram
Darrin Wielb

MOBILE EDUCATION
Jenny Charlton
Keri Landry

TRAUMA SERVICES
Jonathan Guillemin
Sherry MacGillivray

FELLOWSHIP PROGRAM
Aida Danshous
Fateman Qassim
Ryan Iwasiw
Ryan Wilkie
Kathleen Smith

RESEARCH
Jeffrey Lin
Jennifer Davidson
Katherine Lowe
Laura MacKinnon
Mirette Dube
Viktoriya Lambert
Brandi Wan

EMERGENCY MEDICINE
Andrea Boone
Antonia Hwang
Ashley McFedridge
Benjamin Thumm
Caitlin Fienley
Christine Kennedy
Christine Li Yip Shan
Connor Aube
Debra Sty
Debra Lam
Deborah Tamura
Diane Hamel
Eve Laheke
Evan Pale
Gael McNeil
Heather Boucher
Hussein Ummada
Ian Walsh
Jennifer Bouchon
Jennifer Garlin
Jennifer Thill-Freeman
Jillian GAZdich-Nichol
Joel Chystofron
Julie Wallin
Jennifer Law
Kelli Miller
Kyla Stevens
Kristen Johnson

INVENT PROFESSIONALS
Laure Tak
Lorraine Maubert
Malene Wilkens
Michel Bjornson
Namika Sandhu
Paula Espinoza
Peggy Thomsen-Gibson
Rosemary Turnbull
Russell Lam
Shahmad Musayeev
Sherri Wilson
Shirleen Hushu
Tommy Nelson
Ti Kowalwarren

RESPIRATORY MEDICINE
Alicia Tisnic
Angel Nicholson
Christopher Bowers
Heidi Neufeld
Jeanine Johnson
Jennifer Oliverio
Kathy Courtney
Michelle Voepi

INPATIENT PEDIATRICS
Angie Alves
Camryn Robson
Charlette Barnard
Coty Ong
Danielle Mercier
Dominique Cook
Dominique Evastaue
Elena Akl-Abel
Heather Beausit
Jennifer Pollock
Jennifer Waller
Jennifer Whiter
Jose Mayer
Laura Davies
Lily Ragan
Lisabeth Long
Morita Bock
Maria Closter
Marie Ver
Matthew Fadlouline
Matthew Jansen
Kamins CNS
Michael Freman
Michelle Jackson
Preet Sandhu
Renee Jackson
Sarah Schindel
Shawna Score
Susan Cooke
Tara Manzer
Tobias Rong

PICU
Jeddy Jayney
Courtney Reiss
Elise Gild
Gwen-Martin
Jamie Blackwood
Joy Handley
Lauren Lee
Meghan Mahoney
Rob Carina
Tanya Drews
Wendy Bossett

NICU
Amelia Strike
Ashley Mascolo
Blair Becker
Clair Wattenw"olde
Jan Lantz
Lon Stephen
Norma Oliver
Trish Loeb

STEP
Coty Ong
Kathryn Le-Williams
Leslie Ramos-Chen

ROTARY FLAMES HOUSE
Kathryn deGroot Curren
Susanne Tengst

HOME CARE
Amber Davis
Deborah Tamura
Juanita Davis
Meredith Luipasco

CLINICAL
Wendy Schwartz
Rebecca Perry
Eileen Pya

SURGERY
Corey Dowler
Laura Colton Paphos
Shannon Warner
Steven Lawley
Tara Bourque
Caitlin Chester
PICU
Karen Bissau
Tara Bourque

CASUAL
Ashleigh Hulsway
Louise Smith

ORTHOPEDICS
Planar Refract
Linda Bons
Paul Goodwin
Kerry Price
Benjamin Thomson
Dale Provost
Ben Colton
David Lardner
Duncan McLuckie
Elisabeth Dobereiner
Jamin Mulvey
Jeremy Luntley
Mark Gale
Mary Brindle
Michael Lataf
### FUNDING

The KidSIM Program is privileged to have received financial support for infrastructure, equipment and operations from various sources since 2005. The KidSIM Program is extremely grateful for the support-to-date as well as on-going support towards fulfilling its mission and vision. In particular, the KidSIM Program is extremely proud of its long-standing relationship with the Alberta Children’s Hospital Foundation, without whose support the pediatric simulation program would likely not exist.

#### FUNDING

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
<th>Funding Source</th>
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<tr>
<td>2004</td>
<td>$282,818 Purchase of School-Aged Mannequin (METI) and AV equipment</td>
<td>Alberta Children’s Hospital Foundation (ACHF)</td>
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<tr>
<td>2005</td>
<td>$7,400 Purchase of Multimedia Equipment</td>
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<td>$60,000 Purchase of Infant Mannequin (METI)</td>
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<td>$201,740 Purchase of Portable Infant (Laerdal), School-Aged (METI) and Adolescent Mannequins (Laerdal)</td>
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<td>2007</td>
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<td>2008</td>
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<td>2008</td>
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<td>2008</td>
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<td>2008</td>
<td>$2,394,500 Construction and Outfitting of the KidSIM Centre (2012-2013)</td>
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<td>2009</td>
<td>$150,000 Three year funding commitment for Simulation Facilitators (2010-2013)</td>
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<td>2010</td>
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<td>2015-2017</td>
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<td>2018-2019</td>
<td>$181,000 Support for KidSIM Innovation: ACH 3D Printing Challenge</td>
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<td>2019</td>
<td>$93,685 Radiothon Support for purchase of new mannequins</td>
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<td>2019</td>
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<td>$920,000 Funding Extension for Infrastructure and Operations Support</td>
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<td>$51,784 Baby Sim Doll, Radiothon 2019</td>
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<td>$985 4 Little Junior CPR Trainers, Radiothon 2019</td>
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<td>$490,000 Virtual &amp; AR Technology, Radiothon 2019</td>
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#### FAMILY CENTERED CARE AND TECHNOLOGY PROGRAM (FUNDED BY ACHF)

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<tr>
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#### ADMINISTRATION (COMMENTS OF FUNDING)

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<td>$50,000 Purchase of School-Aged Mannequin (Gaumard)</td>
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<td>$30,000 Purchase of Toddler-Aged Mannequin (Gaumard)</td>
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#### DEPARTMENT OF PEDIATRICS

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<td>0.4 FTE Medical Director, KidSIM</td>
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<td>0.5 FTE Program Coordinator/eSIM Consultant, KidSIM</td>
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<td>Alberta Children’s Hospital Foundation (ACHF)</td>
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<td>Alberta Children’s Hospital Foundation (ACHF)</td>
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<td>2010/11</td>
<td>$21,000 Baby Sim Doll, Radiothon 2019</td>
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<tr>
<td>2011-present</td>
<td>0.5 FTE Research &amp; Development Director, KidSIM-ASPIRE</td>
<td>Alberta Children’s Hospital Foundation (ACHF)</td>
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<td>2011-present</td>
<td>0.5 FTE Administrative Assistant, KidSIM</td>
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<td>Alberta Children’s Hospital Foundation (ACHF)</td>
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<td>2019-present</td>
<td>0.2 FTE eSIM Consultant, KidSIM</td>
<td>Alberta Children’s Hospital Foundation (ACHF)</td>
</tr>
<tr>
<td>2010</td>
<td>$50,000 Infant Mannequin (Gaumard)</td>
<td>Alberta Children’s Hospital Foundation (ACHF)</td>
</tr>
<tr>
<td>2012</td>
<td>$30,000 Infant Mannequin (Gaumard)</td>
<td>Alberta Children’s Hospital Foundation (ACHF)</td>
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</tbody>
</table>

#### ESI SIM PROVINCIAL SIMULATION PROGRAM

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
<th>Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-2020</td>
<td>$26,480 Additional Funding, Radiothon 2019</td>
<td>Alberta Children’s Hospital Foundation (ACHF)</td>
</tr>
</tbody>
</table>

#### OTHER PROGRAMS

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
<th>Funding Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>$20,000 Purchase of Premie-Aged Mannequin (Gaumard) - NICU Program, Family Donor</td>
<td>Alberta Children’s Hospital Foundation (ACHF)</td>
</tr>
<tr>
<td>2017</td>
<td>$5,000 Purchase of Premie Anne Task Trainer (Laerdal) - NICU Program, Family Donor</td>
<td>Alberta Children’s Hospital Foundation (ACHF)</td>
</tr>
</tbody>
</table>
Space
Programs
Mobile Education
Family Centered Care
Covid-19 Support
Community Engagement
Faculty Development
Fellows & Electives
Curriculumn Opportunities
Data
The KidSIM Program has grown significantly over the past 10 years. In 2019 the KidSIM Program taught 5,481 learners and 626 sessions. Some of this teaching is done through our mobile education program or in an in situ fashion in the actual clinical spaces themselves. However, bed utilization is unpredictable and quite often cannot be relied on.

Through various fundraising endeavors, the $2.4 million dollar KidSIM Simulation Center opened in January 2014. The KidSIM Center is a 3,600 square foot facility and is the largest pediatric simulation facility in Canada. The center is housed on the 4th floor of the Alberta Children’s Hospital and accommodates four simulation suites with individual control rooms, two proper debriefing rooms, a dedicated storage room, and space for administrative and program staff.

Dedicated teaching space is important for a simulation program to succeed. Each of the teaching spaces is outfitted with an advanced multimedia system to be able to enhance the education experience and continue to offer the possibility of video recording for both research and quality assurance purposes. With the ability to run concurrent simulations in multiple labs, the KidSIM Program has been able to provide more learning opportunities than ever before, especially for large interprofessional teams. The versatility of the space has allowed it to serve the diverse needs of both clinical and academic/research groups, including clinical education and training, faculty development, research, advocacy, family centered care and community outreach.

DISTRIBUTION OF KIDSIM SESSION LOCATIONS IN 2019

- KidSIM Center: 75%
- In situ: 18%
- Mobile: 7%
The breadth of the KidSIM Program in the delivery of interprofessional simulation-based training to both healthcare providers and the families that care for these children at home, as well as programs designed to help deliver that education in the provider’s local environment, allow the KidSIM Program to deliver the health care education that is in alignment with both the mission and strategic directions of both AHS and ACH.

We believe in an education program that is focused on the individual needs of the areas of pediatric health delivery, including sustaining a very effective mobile simulation program to the regional and rural centers of Southern Alberta. In this way, we are building a program that is accessible to all providers in our catchment area.

Our track record demonstrates alignment with the strategic directions of AHS, in that we are bringing health care education to the communities that serve their local populations, striving for a safer and more efficient care system, and increasingly showing that we are working towards better health outcomes.

Our objective of delivering simulation-based education to all individuals and interprofessional teams across the ACH and our new focus on expanding this education to families aligns our work with the ACH vision of providing excellence in family-centered care.

Our program has demonstrated a commitment to providing accessible, comprehensive, integrated and coordinated health education delivery across ACH, which mirrors the ACH mission of advocating for and providing leadership in these same areas.

<table>
<thead>
<tr>
<th>PROGRAMS</th>
<th>PROGRAM OUTCOMES</th>
<th>PROGRAM VARIETY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved performance of skills of ACH staff and emergency staff in hospitals across the catchment area</td>
<td>Improved adherence to established clinical guidelines and protocols of ACH staff and emergency staff in hospitals across the catchment area</td>
<td>KidSIM is responsible for the training of approximately 6,000 learners per year. These learners come from all levels of training, from undergraduate learners all the way to practicing health professionals, and also includes the parents and family supports who care for these children at home or in schools. Learners come from diverse backgrounds, ranging from rural paramedic providers to attending pediatric intensivists to nursing students to family members (amongst many others).</td>
</tr>
<tr>
<td>Improved adherence to established clinical guidelines and protocols of ACH staff and emergency staff in hospitals across the catchment area</td>
<td>Improved teamwork and collaboration of ACH staff and emergency staff in hospitals across the catchment area</td>
<td></td>
</tr>
<tr>
<td>Improved teamwork and collaboration of ACH staff and emergency staff in hospitals across the catchment area</td>
<td>Improved patient safety and quality of care through uncovering and addressing patient safety threats</td>
<td></td>
</tr>
</tbody>
</table>
**Pediatric Emergency Medicine**

**Pediatric Emergency Medicine Fellowship Simulation Education**

The curriculum for pediatric emergency medicine fellowship training was developed with help from leaders at the Alberta Children's Hospital. The new curriculum for pediatric emergency medicine fellowship training was designed to provide residents and fellows with hands-on experience in managing complex emergency department patients. The program focuses primarily on teamwork skills such as communication, roles, and leadership while also teaching common pediatric acute care presentations involving attending physicians, staff nurses, and respiratory therapists.

**Pediatric Emergency Medicine Attending Physician Interprofessional Simulation Education**

Recognizing the importance of team training and continuing competence, the emergency department has implemented monthly simulation sessions involving attending physicians, staff nurses, and respiratory therapists. These sessions focus primarily on the medical management of acutely ill pediatric patients.

**Pediatric Trauma Services Simulation Program**

This Pediatric Trauma Program provides simulation opportunities to any healthcare provider that works with trauma patients to teach both teamwork and medical management. These trauma simulation sessions help to look at issues, guide revisions to the system and educational needs. Learners come from a variety of clinical backgrounds that includes: the pre-hospital environment, the Emergency Medical Services, the Emergency Department, Operating Room, and the inpatient Trauma Unit (Unit 4). Involving multiple services across the trauma care continuum enables better communication and care management necessary to effectively treat multiply injured pediatric patients.

The new national curriculum adopted by the Royal College of Physicians and Surgeons of Canada has 16 required subjects embedded into it over the 2 years, to create a total of 24 scenarios. This fellowship training not only focuses on the medical management of the patient in these scenarios but also developing and improving teamwork and communication skills by ensuring that they are all interprofessional. Nursing and Respiratory Therapists from the emergency department are a vital component in these monthly sessions.

The Undergraduate Interprofessional Education Program is one of the first of its kind in the entire world. This program allows undergraduate learners from five different health professions in their 3rd year of training to work together to manage common pediatric illnesses and injuries. These sessions include nursing students from the University of Calgary and Mount Royal University, respiratory therapy (RT) students from SAIT, licensed practical nurse (LPN) students from Bow Valley College, Emergency Medical Services (EMS from SAIT) and medical students from the University of Calgary during their clerkship rotation in Pediatric Emergency Medicine. These sessions focus primarily on teamwork skills such as communication, roles and leadership while also teaching common pediatric acute care presentations (such as shock, respiratory distress, seizures and anaphylaxis). This program runs on a weekly basis year round.

Pediatric Emergency Medicine Senior Resident / Fellow Interprofessional Team Training

The Emergency Medicine interprofessional team training program links senior residents (typically PGY3 and above) who are performing their rotation in Pediatric Emergency Medicine, as well as Pediatric Emergency Medicine Fellows (as part of their academic half-day schedule) with experienced emergency department nurses from the Alberta Children's Hospital. This session runs twice monthly and incorporates cases related to complex emergency department patients. The program focuses on allowing senior residents and pediatric emergency medicine fellows the opportunity to lead resuscitation teams from the pediatric emergency department. Team training is a compulsory part of the education curriculum for emergency room nurses and they must attend one session per year. The curriculum focuses on teamwork skills and management of complex pediatric acute care patients.

Pediatric Emergency Medicine Fellowship Simulation Education

The curriculum for pediatric emergency medicine fellowship training was developed with help from leaders at the Alberta Children's Hospital. The new national curriculum adopted by the Royal College of Physicians and Surgeons of Canada has 16 required subjects embedded into it over the 2 years, to create a total of 24 scenarios. This fellowship training not only focuses on the medical management of the patient in these scenarios but also developing and improving teamwork and communication skills by ensuring that they are all interprofessional. Nursing and Respiratory Therapists from the emergency department are a vital component in these monthly sessions.

Pediatric Emergency Medicine Attending Physician Interprofessional Simulation Education

Recognizing the importance of team training and continuing competence, the emergency department has implemented monthly simulation sessions involving attending physicians, staff nurses and respiratory therapists. Whenever possible, the training occurs in the Trauma room of the Alberta Children's Hospital Emergency Department to enhance the realism of the scenario and evaluate current systems. These sessions focus primarily on the management of acutely ill pediatric patients.

Pediatric Emergency Medicine Junior Resident Simulation Education

This program runs twice monthly and is aimed at junior residents (PGY1 and 2) during their Pediatric Emergency Medicine rotation. These residents come from various postgraduate programs and this program is intended to teach them various aspects of the care of common pediatric acute care scenarios (including respiratory distress, shock, seizures, anaphylaxis and trauma care). This program runs twice monthly and is aimed at junior residents (PGY1 and 2) during their Pediatric Emergency Medicine rotation. These residents come from various postgraduate programs and this program is intended to teach them various aspects of the care of common pediatric acute care scenarios (including respiratory distress, shock, seizures, anaphylaxis and trauma care).

Pediatric Trauma Services Simulation Program

This Pediatric Trauma Program provides simulation opportunities to any healthcare provider that works with trauma patients to teach both teamwork and medical management. These trauma simulation sessions help to look at issues, guide revisions to the system and educational needs. Learners come from a variety of clinical backgrounds that includes: the pre-hospital environment for Emergency Medical Services, the Emergency Department, Diagnostic Imaging, Transfusion Medicine, the Intensive Care Unit, the Operating Room, and the inpatient Trauma Unit (Unit 4). Involving multiple services across the trauma care continuum enables better communication and care management necessary to effectively treat multiply injured pediatric patients; doing this with simulation is felt to be the best, most realistic technique. The Pediatric Trauma Program also collaborates with KuDISM in the Mobile Education Program. As a Level 1 Pediatric Trauma Centre, the Trauma Program is mandated to provide education for the ACH referral centers. Scenarios are developed on needs assessment from those centers, as well as real cases that were identified as being challenging. The interprofessional teams take part in the scenario in their own resuscitation/trauma room which helps to identify equipment, resources, logistical and educational needs. This proves to be invaluable for the referral centers in multiple ways. Of note, the Accreditation Canada survey September 2019 for Provincial Trauma Distinction highlighted this robust outreach program as a clear demonstration of commitment to provide quality trauma care to the pediatric population of Southern Alberta.
PEDIATRIC INTENSIVE CARE UNIT (PICU)

Extracorporeal life support (ECLS) Team Training
This is a program involving training interprofessional and interdisciplin ary teams to manage critically ill pediatric patients requiring initiation of ECLS. This essential care was initiated in October 2011 and has required a lot of training for the staff. Curriculum for this training has been created with objectives focusing around the initiation of ECLS for pediatric patients (newborn to 18yrs) who have received maximal medical management including CPR requiring heart and/or lung support similar to bypass. These sessions include a large interprofessional team including Nurses/Respiratory therapy, General Surgeons, Intensivists, Cardiologists and Perfusionists. This allows them to practice the entire procedure of stabilizing and connecting a patient to the ECLS and can include simulating complications and rare events that the team may face during this complex process.

The program owns its own ECLS simulator which allows us to train our staff on circuit and patient troubleshooting complications. We have developed our own cannulation mannequins in both infant and pediatric sizes that allow appropriate CPR delivery, cannulation of neck vessels, and attachment and circulation on pump. Simulation is also routinely used to map out process throughout different aspects of the program.

As of January 2020, the program has placed 54 children on ECLS with 37 of those children surviving to hospital discharge. Survival to hospital discharge for ACH ECLS patients is 69%, as compared to international averages of 41-58% (depending on diagnosis). All patients at ACH have access to ECLS therapy as we have expanded our program to include all inpatient areas, the NICU and the emergency department. Our program is unique worldwide and success can be largely attributed to simulation as the core of our educational curriculum.

Mock Code Program
This long-standing program provides code blue (resuscitation) teams and the corresponding "host" staff where the mock code blue occurs to practice resuscitation skills on a monthly basis. Various areas around the hospital are selected to "host" mock code training.

Scenarios are built specifically for the "host" area and involve a deterioration of a patient that would typically be seen in that clinical area. The scenarios are geared to the interprofessional on-call resuscitation team. However, staff from the "host" unit is also included in the simulation. There is also a significant focus on process related components within the mock code to identify gaps or issues around those aspects of calling a code blue.

This program was modified in the last couple years to always involve the real team that would be running the code. Historically the residents would run it but we've moved to having the hospital pediatrician and intensivist have a discussion over who will team lead. To maintain a safe learning and debriefing environment, there is always a hospital pediatrician and intensivist as part of the team facilitating the mock. Following each mock code there is a summary document circulated with learning points from the event (system, communication / teamwork skills, etc.)
PEDIATRIC INTENSIVE CARE UNIT (PICU)

STEP Team Training
The STEP team is a pediatric critical care response team who provides early assessment, education and management of evolving unstable pediatric patients admitted to inpatient units, as well as transition care for patients being transferred out of the PICU to the inpatient units. The STEP team is involved in a number of interprofessional simulation sessions and uses the venue to provide education to healthcare teams on the role of the STEP team, as well as patient management of acutely ill children.

The team uses simulation to orient new team members, maintain skills and practice management of the deteriorating pediatric patient. The team is involved in many different educational courses that simulate the need for the healthcare team to activate the STEP team. If the STEP team is available and not busy with a real patient they will respond to this call and take part as a participant in the simulation.

PICU Interprofessional Cardiac Arrest Team Training
This program focuses on critical care medicine and team training in the Intensive Care Unit. The participants are PICU Nurses, Respiratory Therapists and Attending PICU physicians.

The objectives focus primarily on teamwork skills and medical management of the most critically ill and complex children cared for in the PICU. They have used simulation to change systems and introduce new equipment to staff ensuring that they are well trained and prepared for any situation. The team training aspect has finished, with the program moving to do roving cart refreshers and simulation as part of BCLS training.

Pediatric Transport Program
The Pediatric Critical Care Transport Team (PCCTT) is responsible for the safe transfer of critically ill children from across southern Alberta and southwestern British Columbia to the Alberta Children's Hospital for escalating care, and to transfer patients to the Stollery Children's Hospital (Edmonton) for cardiac surgical services. This team currently has 30 RNs and RTs trained to fly transport patients without physician accompaniment (RN/RT team only). In 2019, 94% of pediatric transports performed used a two person (nurse and respiratory therapist) transport team, and a medical control physician consulting via phone.

The team has seen a year over year increase in acute transports with 2020 being on track to have over 320 children transported by our team. Simulation is a key component to our educational curriculum, including a formalized simulation program that runs our team through weekly sessions. Simulation is used for initial training, skill maintenance, process improvement, and equipment familiarization. We partner with EMS, STARS and Air Ambulance to run simulation sessions incorporating our team members and to utilise their vehicle simulators to run scenarios in the real environment. The program utilizes a simulation team as a part of the certification process for RNs and RTs. The transport team has partnered with the mobile education program over the last number of years to have a transport team member trained as a facilitator to participate on every mobile outreach session.

The past 3 years have seen us regularly incorporate telehealth during mobile education sessions. This provides an added layer of realism and education to mobile education, and is a launching pad for our transport program to widely implement the use of telehealth technology for all calls coming in to our transport team. Simulation provides us the opportunity to be one of the most well-trained pediatric transport teams in the country.
Pediatric Interdisciplinary In-patient Simulation Education

The Section of Hospital Pediatrics has been running interprofessional training sessions with in-patient unit nurses and respiratory therapists since 2007. This is a truly novel program that includes the attending staff hospital pediatricians. These bi-monthly sessions incorporate specific cases related to the in-patient unit where the participating staff normally works. The sessions are designed to highlight both medical objectives and teamwork skills.

The Section of Hospital Pediatrics has made this a mandatory education session for all Pediatric Attending Hospital Pediatrics working at the Alberta Children’s Hospital. Simulation sessions have incorporated other departments to highlight new policies and processes, including PICU and the ECMO team, anesthesia, subspecialty medical and surgical services, and Child Life, to make these simulations truly relevant to current in-patient practice.

Pediatric Residents’ Academic: Half-Day Interprofessional Simulation ‘Team Training with in-patient Nurses’

On a yearly basis, each post-graduate year (PGY) level of resident is offered the opportunity to act as team leaders and team members during each of the scenarios. These residents are paired up with nurses from the various in-patient units and respiratory therapists since 2007. During these sessions, the pediatric residents are given the opportunity to act run a scenario of shock, which would be modified to fit an oncology patient or critically ill patient that they are likely to see on their unit. For example, the PGY2 residents might run a scenario involving ECMO, anesthesia, subspecialty medical and surgical services, and Child Life, to make these simulations truly relevant to current in-patient practice.

In-patient Pediatric Units

Pediatric Intensive Care Unit (PICU)

The education team in the PICU has established regular interprofessional sessions based on real patients. The benefit is that the worst case scenario of a deterioration of a patient is practiced in a safe environment so that the team knows what to do and how to manage the change in condition.

Oncology and Hematology In-patient Unit

New in 2018 to the Oncology and Hematology in-patient unit has been using Just in Time simulation training to assist the interprofessional teams care for these complex patients more effectively. This unit is new to simulation and has found that this has been a useful way of integrating simulation into the unit for all of the staff to get familiarized with simulation and how if improves patients care. They have been able to successfully predict and practice high risk scenarios using simulation prior to a patient’s deterioration allowing the healthcare team to manage the situation more effectively.

Neonatal Intensive Care Unit (NICU)

The Neonatal Intensive Care Unit has also established a Just in Time simulation training on real patients that are admitted in the unit. This provides the entire team, nurses and medical staff the ability to predict and anticipate potential deterioration of the patient with the hope that the change in condition is able to be prevented.

Operating room and Post Anesthetic Care Unit

This unit has been successful in implementing Just in Time training into the OR and PACU. They have the unique situation in being able to prepare educational sessions based on the planned surgical cases. This allows them to predict potential situations that need to be practiced to ensure the best possible outcomes.

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Surgical Services Simulation – Combined OR/PACU/SSSU
This program runs monthly with members for all three nursing teams in surgical services (OR, PACU and the Short Stay Surgical Unit). Scenarios are based on a variety of emergency management scenarios that all areas may see like anaphylaxis. A big focus is to facilitate communication and team building by bringing nurses from all areas of surgical services together. These sessions have allowed teams to work and learn together while helping to identify the different skill sets and supports that each area brings to the care of our surgical patients. Objectives depend on the environment that the scenario is set but focus mostly on the management of common surgical complications. This program has been well received by the nurses who have participated but staffing challenges and other logistics have made it challenging to have these on a regular basis.

OR Education On Demand
This is a relatively new simulation program within the Operating Room. “Education on Demand” has a similar design to Just In Time Simulation. The intent of this program is to provide a simulation experience based on potential situations that have a high probability of occurring within the OR clinical environment. These scenarios require a high functioning team to manage but the OR team may not experience these situations on a regular basis. With Education on Demand sessions, everyone gets an opportunity to work through an acute situation and together determine how to provide the best care to the patient. The OR team involved in these scenarios work together throughout the rest of the day; the idea is that participating in these simulations will provide them with the ability to plan, practice and discuss how they will work together in the event of an actual crisis. In order to respect the needs of our learners and the flow of patients through the OR, these simulation experiences will be kept to 30 minutes. Targeted learning objectives focus mainly on potential system issues that can arise during an acute situation and on building the perioperative team.

POST-ANESTHETIC CARE UNITS
Post-Anesthetic Care Unit (PACU)
Simulation education is built right into existing education time for PACU staff which is currently 45 minutes on Friday mornings. Historically this program runs session 2-3 times/year for nursing staff. Most of the sessions to date have focused on emergency events that may happen in PACU, such as airway management. PACU also includes simulation in annual continuing education skills day, which every staff member must complete.

MEPA (Managing Emergencies in Pediatric Anesthesia)
This is an all-day simulation course focusing on 4 Pediatric Anesthesia Crises. Every resident in the U of C Anesthesia Program has been taught through this internationally-recognized program that is offered every 6 months. MEPA is a well-established course in the UK which we have brought to the ACH to improve comfort and competence in Pediatric anesthesia management for our resident trainees.

Perioperative Crisis Management Course (POCM)
POCM is a full-day course at Alberta Children’s Hospital designed and developed to improve crisis management in our operating rooms. POCM is a multidisciplinary, inter-professional course involving operating room RNs, post-operative recovery room RNs, Pediatric Anesthesiologists, Pediatric Surgeons, and Respiratory Therapists. This is a 6 hour course involving 4 simulated crises scenarios based on our last 3 year of experience in the peri-operative environment. Those cases which have been reviewed at our Quality Improvement/Quality Assurance rounds are used as a foundation for scenario development. In this way we have united our QI/QA initiative with a simulation initiative with a goal to optimize patient care. POCM participants receive extensive feedback on their performance. In addition to self-assessment, participants engage in prolonged debriefings where team assessment is the focus. Both individual and team performance are highlighted within each debrief and all members of the team are involved in each scenario and debrief. The objectives include the recognition of the importance of a multidisciplinary team and the impact of human factors on the delivery of safe and effective care during a perioperative crisis.

Day Surgery
This program runs monthly simulation sessions capitalizing on previous set education time. These sessions are currently only uni-professional focusing on nursing staff. The objectives focus on managing a variety of routine post-surgical complications.

Pediatric Anesthesia Core Sessions
This is a 9 week program offered every two years at ACH. Over 9 Thursday afternoons, all U of C anesthesia residents (from R1-R4) participate in a four hour session. These sessions are educational covering a broad range of pediatric anesthesia subjects. Prior to the lectures we facilitate simulations which are germane to the proceeding lectures for that particular session.

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Evacuation Simulations
In preparing for the unknown, simulation can play a valuable role in systems simulations which allow the team to practice potential real events. In 2018, the Alberta Children's Hospital, along with KidSIM, practiced evacuation simulations with several different pieces of equipment. Staff involved safety, simulated within the hospital, what it might be like to have to evacuate patients. Going down different staircases, over different types of flooring and with multiple sizes of patients. By preparing for evacuation events, it can allow for all dust spines within the hospital to be equipped and supported if a real event was to occur.

Systems Simulations
Simulation is being used on a regular basis to test systems/environment in most areas within the hospital. This has included simulating moving sick children from one area to another (ER to OR, inpatient unit to PICU during CPR), to work out new processes and discover some unforeseen challenges in caring for the child in this situation. The simulation helps identify high risk processes that are often unpredicted and also allows staff to experience these scenarios prior to them occurring. Simulation has also been utilized to practice need/changes in processes or test new areas of patient care prior to an adverse event occurring.

Emergency Management Disaster Preparedness
Simulation is the foundation of testing emergency management disasters to prepare staff for an unpredicted event. This has included Code purple (Hostage or threatening situation) and Ebola exposure allowing staff to safely practice an event occurring within the hospital. The staff involved are fully supported during and after the event with a special focus on maintaining psychological wellness while practice distressing events. Systems issues or gaps in education can be identified and a solution created prior to real event.

Palliative Care
Rotary Flames House
This program has utilized simulation in a variety of ways. Rotary Flames House has grown to care for patients with greater medical needs, such as ventilated tracheotomy patients. They have incorporated interprofessional in situ simulation for the staff to become more familiar with the specialized needs of their patients. They have also adopted the ‘Just-in-Time’ philosophy and run scenarios based on the care needed for their patients that are presently admitted in the Rotary Flames House.
Mobile Education is an interprofessional program designed to deliver in-situ pediatric education to our Rural and Community partners. We foster supported learning environments where team members can work through common pediatric scenarios and have the opportunity to respond in real-time to pediatric medical emergencies in a controlled and safe environment. Participants talk with their patient, gather information, work as a team, perform physical examinations and procedures and work on team communication.

A great benefit to having scenarios in your own working environment is being able to find your own equipment, medications, and pediatric references, in order to identify potential problems and challenges prior to having an actual patient. An adjunct to our Simulation Education is a hands-on workshop. Our program is committed to supporting our rural partners and helping to identify and correct any obstacles to our pediatric population being able to receive the best possible care.

In 2019 the Mobile Education team’s focus was communication and common pediatric skills. Prior to the simulation sessions starting, the team spent an hour engaging the learners in communication and teamwork activities and common pediatric skills stations. The communication theme carried forward into the simulation sessions, for example the trauma simulation session required the learners to activate the telehealth resources that communicates to the ACH PICU transport team, to assist in the management of the case.

Not only did the call in site benefit from learning how to communicate effectively within the site and with ACH but the consulting site learned the benefits of efficient communication. This communication also assisted in building relationships amongst sites.

ImPACTS (Improving Pediatric Acute Care through Simulation) collaborative was created to ensure that ill and injured children receive the highest quality of emergency care wherever and whenever it is needed. Currently, there are disparities in pediatric emergency readiness, quality of care and outcomes across emergency departments in Canada and the U.S. and the majority of children are cared for in non-pediatric hospitals who may lack the resources and personnel to effectively care for pediatric emergencies.

The ImPACTS 2018 Protocol is an innovative improvement intervention involving Children’s Hospitals “hubs” collaborating with Community Hospital “spokes” supported by a central “core” based out of Yale University with the goal of improving overall pediatric readiness at “spoke” sites. The KidSIM Mobile Education Program joined ImPACTS in January 2019 and is currently actively engaged with “spoke” sites in this quality improvement intervention.
FAMILY CENTERED CARE

FCC CPR Training - NEW
KidSIM has become involved in families whose children have a life threatening cardiac condition that would require them to perform Compressions and rescue breathing (CPR) and potentially to use an AED to treat the cardiac arrhythmias through defibrillation, the application of electricity to reset the heart into an effective rhythm. Teaching occurs in Cardiology clinic on the use of AED and then they are referred to KidSIM to have CPR and AED training that is adapted to suit their specific child.

Traditional CPR courses do not address these unique types of situations. Families and their supports attended a 3-4 hour individualized course allowing them to practice CPR with feedback (just as medical staff train on) and practicing an emergency situation from start of the emergency, initiating CPR and using AED to simulating EMS arriving. This is challenging for families to experience and think through this emergency however the families have appreciated their improved confidence and feeling of readiness.

New this year to support this child and family in the community with this life threatening diagnosis we have been asked by the family and/or the schools to help them prepare for this child and a medical emergency in a school setting. Similar to Fire or Lock Down drills these schools are now incorporating medical emergency drills. This year we have taken our equipment into these children’s school setting to allow the staff to train. We have gone into 5 schools to do a CPR with AED refresher and practicing scenarios in the classroom or other locations in the school. This has helped the school create, trial and train staff in their medical emergency plan. Schools have a challenge of managing other students, calling EMS, letting staff know in the school and coordinating all these actions.

FCC Seizure Program with CPR Training
This year we started a pilot project to help families the opportunity to practice the emergency management and care of their child while seeing who stop breathing. A need was identified that families are sent home with children who can have life threatening conditions and these families do not have any opportunity to learn how to deal with these emergencies. Traditional CPR courses do not address these unique types of situations. Families and their supports attended a 3-4 hour individualized didactic and hands on teaching session which includes seizure management teaching and a high fidelity simulators and CPR training.

The goal of these sessions is to provide the family and the child’s support system the opportunity to practice using high fidelity simulators and CPR feedback manikins to become skillful at lifesaving skills.

FCC Seizure Program
This program aims to explore the benefits of using simulation to support traditional seizure discharge teaching for families going home from hospital with a child who has a seizure condition. Using simulation, this program increases the confidence and skill level of family members who are discharged home with children who are at high risk of suffering seizures at home. This program developed from a project that was generously supported by a grant through the ACH Foundation.
FAMILY CENTERED CARE

FCC Tracheostomy Program

The CCAN (Children with Complex Airway Needs) Program, which was supported by the ACH Foundation in development and design, has been in place since January 2015. In the past year, 5 families went through the program; 85 caregivers were training via our tandem caregiver training program, including URSA staff for the 2 medically complex children who live at Cubhouse, bus LPN staff, school LPN support staff, and extended family members.

Research recruitment and simulation assessment of skill and knowledge retention of management of a blocked trach was completed in January 2020 and data analysis is underway. The data is clearly showing that the formal retention of management of a blocked trach completed in January 2020 was signed off on skills and competencies for each child. This allowed for each child to be able to travel with the URSA staff on walks outside the unit and outside the hospital in nice weather.

Outside of the URSA staff, Community Paramedics also received targeted tracheostomy and ventilator training for these 2 children as they would be the primary responders for daytime issues to the Cub House. A large in-service for the Calgary Zone Paramedics in October also focused on these children and supporting trached and vented children in their catchment area. Once the Cub House was ready in November, simulations were provided on-site for both children in regards to blocked and dislodged trachs, ventilator alarms and circuit issues, bagging, and CPR. All training and simulation was completed for the URSA staff by November’s end. Both children were discharged to the Cub House in early December. Several large simulations were held on site to improve communication between URSA and EMS and to improve care for both these children.

URSA Simulation

In 2018, an initiative endorsed by the new Zone Leader for Children with Medical Complexities allowed three services (Alberta Health Services, Community and Social Services, and Children’s Services) to coordinate and create home based living options for children residing in Alberta Children’s Hospital who required long term complex medical support. URSA, Universal Service Rehabilitation Agency, is a non-profit agency that provides care, support, and services for people with complex medical needs in community settings; and is the provider for these homes. Cub House was the first of two homes that provides housing, respite, and long term specialized care for each child to be able to travel with the URSA staff on walks outside the unit and outside the hospital in nice weather.

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\"I was contacted by a neighbor of one of our trached children. They wanted to take the trach course and learn how to take care of a child with a trach, so they could offer a sleepover for their trach kid. Their trached child is the best friend of their son. They wanted it to be a surprise, but I had to notify the trach Mom in order to get permission to proceed. When I told her what her lovely neighbors wanted to do, she burst into tears and was so overwhelmed that someone would want to do that for her son – of course, she gave me permission to proceed! She promised that she would act surprised! The neighbors were amazing, took the training to heart, and asked for extra simulation to learn. They organized the sleepover to coincide with the trach Mom’s anniversary – the sleepover was a success but not really a surprise. This is a great example of what simulation can do for our trach community, and there have been many more sleepovers since!\" - Juanita Davis, Pediatric Trach Coordinator, ACH
FCC Simulation in Educational Centers

Challenges in integrating children with complex health care needs into the educational system (preschool, daycare, kindergarten and schools) have been identified. Simulation has been used regularly to help the educational centers have a better understanding of the child and their needs, and to practice the specialized emergency care that child may require.

This program occurs in the educational centers and provides education and simulation for all the staff involved in the child’s care, including bus drivers in their centers and utilizes the child’s personal equipment such as wheelchairs and standing frames. The staff become prepared for an emergency situation and have had the opportunity to create and trial a plan prior to an incident. Emergency Medical Services (EMS) have also been involved in these simulations to create a plan identifying the unique emergency care requirements of each child to mitigate risks and to prepare EMS staff.

KidSIM has supported 2 children and their families for the 3rd year by teaching staff at the child’s school about their seizures. This has been a refresher for the staff but also allowed new staff to think through the emergency and what to do if this situation were to arise.

FCC Home Care

Children with complex health care needs are cared for in the community. Simulation has been used to train home care staff to care for the children in a variety of settings including home and schools. This training includes new equipment that a child requires, maintenance of competency and to prepare staff for emergencies in the community.

FAMILY CENTERED CARE

**FCC Simulation in Educational Centers**

- Total number of FCC Sessions: 69
- Family members trained: 100
- Caregivers and teachers trained: 303
- Schools/daycares received training: 16
COVID-19 SUPPORT

The KidSIM Program provided invaluable support and training within the Alberta Children’s Hospital during the Covid-19 pandemic. Simulation played a key role in designing and practicing new protocols in order to adapt to new safety measures and to minimize the risk of cross contamination.

Standardize Processes

Reduce Risk of Cross Contamination

Optimize Systems

Improve Patient Care

Using simulation to coach staff on proper donning and doffing of PPE

Standardizing PPE processes

Identifying and testing new locations for COVID-19 patient treatment

Identifying and testing the need to declutter resuscitation rooms and hallways

Identifying and testing new patient drop-off location for EMS

Identifying and managing risk factors associated with a variety of specific environments

Identifying and testing patient safety techniques

Lending KidSIM equipment to real patient areas

Identifying and testing new locations for COVID-19 patient treatment

Identifying and testing the need to declutter resuscitation rooms and hallways

Identifying and testing new patient drop-off location for EMS

Identifying and managing risk factors associated with a variety of specific environments

Identifying and testing patient safety techniques

Lending KidSIM equipment to real patient areas

Testing the transfer process of a COVID-19 patient to reduce the possible contamination of the environment, staff, equipment and patients, and to reduce the possible contamination to other departments

Testing new COVID-19 screening processes for families and patients

Identifying and testing patient safety techniques

Lending KidSIM equipment to real patient areas
HOW SIMULATION SUPPORTED THE COVID-19 RESPONSE

Simulation has been playing a key role in Covid-19 preparedness across all areas of the Alberta Children’s Hospital. The following programs highlight some of the important work that the KidSIM Team has been involved with to improve safety and patient care.

Personal Protective Equipment

Personal Protective Equipment (PPE) was identified as being the main target for all simulations. KidSIM and Safest Together’s focus was to target staff in all areas of the hospital who come into contact with patients and train staff to improve PPE adherence (from Environmental Services, Protective services all the way to bedside staff). Through simulation training it was discovered that staff were able to prepare better and enter a patient room quicker and safer by creating the role of a PPE Coach.

The role of the PPE Coach is to walk staff through the donning and doffing process and double check their PPE has been properly applied before entering a room. Coaches are available any time to answer calls to support staff with the PPE donning and doffing process anywhere in the hospital. The PPE Coaches also responded to Code Blue/emergency calls. KidSIM and Safest Together trained staff that were redeployed from clinics for the role of PPE Coach. Simulation allowed them the opportunity to learn crucial communication skills to ensure that every staff member who entered a room was appropriately dressed and would be safe.

In order to conserve essential supplies, the KidSIM Program uses expired masks, gloves, glasses and uses stickers to simulate N95 masks.

Emergency Department

The Emergency Department currently manages and treats acutely ill patients in a 2 bed trauma resuscitation room. Simulation was used to test a new patient care trauma space for COVID-19 patient treatment. Simulation was also used to test new COVID-19 screening processes for families and patients coming to the Emergency Department and to trial the flow of patients through the process of initial screening to transferring the patient to the appropriate department (Inpatient, PICU, CS etc). Simulation training helped standardize procedures for donning and doffing personal protective gear for contact and droplet isolation.

Code Blue Response

New protocols to protect patients and staff during a code blue were trialed, adapted and taught to the bedside health care providers (MD staff and residents, Nursing (RN and LPN), RRT, Social work). Simulation was used on all units to run simulated code blue sessions, testing the uptake of new protocols and how to support and educate staff during a code blue. Simulation highlighted potential risks for cross contamination and test solutions, such as: changing bagger filters to one universal filter, and the need for standardized ‘rapid response carts’ on every unit. Simulation improved the functionality of these carts and highlighted the importance that carts need to be standardized so that staff on all units can find and access essential equipment quickly and safely.

NICU Code Blue Response

The NICU has been trialing their new code blue and intubation guidelines; making amendments to these to fit the unit and their patients.
HOW SIMULATION SUPPORTED THE COVID-19 RESPONSE

Outpatient Clinics
With 72 outpatient clinics, staff have been trialing how to manage patient load, clinical space, the effect on patient flow, and how to make the overall process of screening and communication between clinics as efficient as possible. Screening is a crucial component of prevention and limiting the spread of Covid-19. Simulation has been used in the outpatient clinics, specifically for booking clerks who carry out this screening, to help them communicate information to the rest of the team. Families may have more than one clinic visit in a day. Simulation is also being used to test communication flows to other units so that there is less confusion, less duplication of tasks and to keep everyone on the same page.

Adult Patients
To prepare for a potential surge in adult ICU patient admissions, the PICU at the Alberta Children’s Hospital has been preparing for the possibility of caring for adult patients. Simulation was used for staff to become familiar with different equipment used for adult patients, such as lifts and different beds.

Mobile Education
The KidSIM Mobile Education Lead reached out to our mobile sites to provide support and education for Covid-19 and pediatric management and treatment. A newsletter was created to provide ongoing up-to-date information.

WHO AND WHERE SIMULATION SUPPORTED

LEARNERS
The KidSIM Program provided training for staff from all areas of ACH. Staff reported that simulation training has improved the way that they work.

SESSION HOURS
Simulation played a key role in designing and practicing new protocols in order to adapt to new safety measures and to minimize the risk of cross contamination.

SESSIONS
The KidSIM Program provided invaluable support and training within the Alberta Children’s Hospital during the Covid-19 pandemic.
WHO SIMULATION SUPPORTED

- Attending Physician (114)
- Residents & Fellows (76)
- Nurse Practitioner (1)
- Registered Nurse (560)
- Licensed Practical Nurse (11)
- Respiratory Therapist (111)
- Health Care Aide (51)
- Emergency Medical Services (3)
- Social Work (6)
- Orthopedic Technician (24)
- Housekeeping (190)
- Porters (16)
- Protective Services (33)
- Child Life/Speech Pathologist (44)
- Optometrist (7)
- Lab Technician (40)
- EEG Technician (15)
- Dietician (13)
- Physical Therapy (11)
- Other (54)

THANK YOU

The KidSIM Program would like to thank all of the dedicated and compassionate front line workers and essential service workers for their ongoing commitment to provide excellent service, patient care, education and research during regular times as well as the COVID-19 pandemic. Your dedication deserves the deepest gratitude and admiration.
Doors Open YYC gives the public an opportunity to see locations around Calgary they normally would not have access to and provides behind-the-scenes experiences. The KidSIM Pediatric Simulation Program has been invited back to participate in this annual event each year since 2013. KidSIM staff were on hand offering tours, hands-on demos, and running simulations with public participation. This year the team decided to have a very child-focused activity during our DOYYC program. We were thrilled to be joined by 3 Emergency Communications Officers from Calgary’s Emergency Medical Services 911 Dispatch center. They provided our visitors the opportunity to place an actual call to 911 to report a simulated emergency that we had set up in our simulation center. The Emergency Communications Officers answered these “calls” and guided them through the actual emergency reporting process. It was a pleasure to provide a realistic, risk-free environment for children and their parents to simulate this important, high-stakes task.

KidSIM Sponsored Dr. Todd Chang from Children’s Hospital Los Angeles to present at the Innovation for Health Tech Tent. Innovation 4 Health is a University of Calgary endorsed organization which aims to bridge the gap between innovators, healthcare professionals, and healthcare users to promote innovation, collaboration and the translation of ideas into clinically relevant technical solutions. Through the Innovation 4 Health Hackathon, multidisciplinary innovators and healthcare stakeholders were brought together to form teams around real-world challenges.

COMMUNITY ENGAGEMENT

DOORS OPEN YYC

INNOVATION FOR HEALTH
The ASSET (Advanced Skills for Simulation Educators and Teachers) program introduces participants to all of the concepts of simulation, as well as provides practical experience in the delivery of simulation-based education. It links educators with simulation programs to allow for a mentorship period following the course. Courses consist of learners from various healthcare provider backgrounds, including medicine, nursing, respiratory therapy, among other healthcare professionals. In 2019, the KidSIM Program provided ASSET faculty development courses at ACHR, SAIT, Banff, Saskatoon and China.

**ASSET FOUNDATIONS**

Foundation of Simulation Education and Debriefing

ASSET Foundations is a two-day course that provides a broad overview of core simulation concepts and principles to novice and intermediate simulation educators. By the end of the course, the participants will be able to design and run their own simulation, and feel comfortable facilitating the debriefing session that follows.

**ASSET FOUNDATIONS REFRESHER**

Foundation of Simulation Education and Debriefing

ASSET Foundations Refresher is a one-day course that provides an overview of core simulation concepts and principles discussed in ASSET Foundations. This course is designed for participants who have taken ASSET Foundations or an equivalent course and require a refresher.

**ASSET CO-DEBRIEFING**

Strategies for Effective Co-Debriefing

ASSET Co-Debriefing is a one-day course for intermediate simulation instructors who have experience with running simulation with another colleague and the difficulties that arise from doing this. By the end of the course the participants will learn techniques to address these challenges and skills to effectively run simulations and debrief with colleagues.

**ASSET FAMILY**

Strategies to Integrate Simulation Education into Discharge Teaching

ASSET Family is a one-day course for anyone involved in patient and family education or discharge teaching. By the end of the course the participants will learn specific strategies to design, deliver, and debrief simulation scenarios targeted specifically to patients and families.

**ASSET ADVANCED**

Advanced Toolbox for Difficult Debriefing Situations

ASSET Advanced is a one-day course for intermediate simulation instructors (ideally with at least 12 months of simulation and debriefing experience) designed to provide advanced debriefing skills and techniques. Participants will be introduced to common debriefing challenges and pitfalls, including some important ways to avoid them. Participants will also be introduced to an advanced toolbox of debriefing skills designed to help overcome difficult debriefing situations. Videos of simulation scenarios will be used as the basis for discussion, debriefing practice and feedback.

**ASSET PEER COACHING**

Strategies for Providing Effective Feedback to Peers and Colleagues

ASSET Peer Coaching is a one-day course for intermediate simulation instructors who have experience running simulations with another colleague. Participants will explore how to provide effective feedback to peers and colleagues in a way that is non-threatening and how to seek constructive feedback from colleagues to identify learning gaps in their own practice. By the end of the course the participants will learn techniques to define and describe the benefits of peer coaching; highlight strategies for creating a culture for peer coaching; describe elements of pre-briefing, scenario execution and debriefing performance that can be explored when coaching peers; and apply tools designed to help with peer coaching.

**FACULTY DEVELOPMENT**

- Total number of formally trained Simulation Facilitators: 187
- ASSET Foundations (newly trained facilitators): 74
- ASSET Foundations Refresher (returning facilitators): 39
- ASSET Co-Debriefing (advanced training for facilitators): 33
- ASSET Advanced (advanced training for facilitators): 30
- ASSET Peer Coaching (advanced training for facilitators): 30
- Overall KidSIM Facilitator Retention from previous year: 97%
The KidSIM program developed an elective rotation for residents and fellows with an interest in developing skills and experience in simulation-based education. In 2019, 7 residents completed the elective rotation.

**FOUR MAJOR COMPONENTS**

**SIMULATION PROGRAM OPERATIONS**
Residents will demonstrate an understanding of the basic planning, organization and operation of a simulation centre. Residents will also understand the value of experiential learning in adult education and how simulation is an ideal tool for that type of learning. Residents will also demonstrate an understanding of the different simulation equipment available.

**SCENARIO DEVELOPMENT**
Residents will demonstrate an understanding of the aspects and development of an objective-based scenario, including relevant roles, props and audiovisual aids.

**SIMULATOR TECHNICAL SKILLS**
Residents will demonstrate the basic use of the simulation equipment and software being used in the KidSIM Program. Residents will also demonstrate how to facilitate a scenario for learners.

**DEBRIEFING SKILLS**
Residents will demonstrate how to run an effective debriefing session following a simulation scenario. Most of the time in the rotation will be spent practicing and consolidating these skills. Residents are encouraged to get involved in as many sessions as possible, and to take advantage of this practice in the presence of an experienced facilitator.

The KidSIM Pediatric Simulation Program offers a Fellowship in Simulation Education and Research. This Fellowship is offered in collaboration with the Medical Education Specialization Program at the University of Calgary. The overall aim of this fellowship is to prepare the candidate for an academic career as a simulation educator, with advanced knowledge and skills in the delivery of simulation-based education and research. KidSIM trained four fellows in 2019. KidSIM welcomed back fellow Fatemah Qasem, anesthesia consultant and clinical tutor from Maternity Hospital Kuwait. In the summer of 2019, KidSIM welcomed three new simulation fellows: Aida Darweish, Emergency Medicine Physician from Saudi Arabia; Ryan Wilkie, Pediatric Emergency Medicine; and Ryan Iwasiw, General Internal Medicine.

**KIDSIM FELLOWSHIP OBJECTIVES**

1. Demonstrate knowledge of concepts in adult learning theory, experimental design, evaluation, and computer applications in simulation-based education.
2. Participate in the development of innovative simulation-based teaching strategies for all levels of learning: undergraduate and postgraduate trainees, as well as continuing education for healthcare providers.
3. Participate in the delivery of interprofessional education by an interprofessional teaching team.
4. Demonstrate knowledge of key issues in simulation-based education relevant to both the simulation learner and the simulation educator.
5. Initiate, design, conduct, present and or publish a simulation-based research project with the mentorship of the KidSIM-ASPIRE research program leaders.
6. Participate in the structured KidSIM Simulation Fellowship curriculum and other educational opportunities (e.g outreach simulation, rounds).
7. Demonstrate a commitment to medical education by considering enrollment in a graduate degree program in education (Masters or PhD).

**ELECTIVES**

The KidSIM program developed an elective rotation for residents and fellows with an interest in developing skills and experience in simulation-based education. In 2019, 7 residents completed the elective rotation.

**SIMULATION FELLOWSHIP CURRICULUM**

Educators from the University of Calgary have developed a longitudinal simulation-based education and research curriculum for fellows from across the various simulation fellowship programs associated with the University of Calgary. It is hoped that this curriculum will provide an opportunity for fellows to collaborate and work with a broad array of simulation-based educators and researchers in Calgary. The program aims to foster a solid grounding in the theory and practice of simulation via interactive teaching on various elements of simulation in education, research, and integration into systems, quality and patient safety programs. The KidSIM Program was involved in the planning and launch of this curriculum and several KidSIM Faculty are instructors.
Dr. Lisa Barker is Director of Education at Jump Simulation and Clinical Associate Professor of Emergency Medicine at the University of Illinois, College of Medicine Peoria. Dr. Barker chairs the Jump Return on Investment Committee which is charged with the review and quality assurance of all simulation-based education that occurs at Jump. Dr. Barker is an emergency physician by training and directed the simulation program for UICOMP Emergency Medicine Residency for the 10 years prior to her current role. She has also served as faculty for multiple regional, national and international conferences. Dr. Barker and Dr. Vozenilek spoke on “Return on Investment Activity”.

As the VP and Chief Medical Officer of Jump Simulation, Dr. Vozenilek provides central coordination and oversight for OSF Healthcare’s undergraduate, graduate, interdisciplinary, and continuing medical education programs. Under his direction, the OSF Healthcare and the University of Illinois, College of Medicine Peoria have created additional organizational capabilities and infrastructure, building resources for educators who wish to use additional innovative learning technologies for teaching and assessment. Dr. Vozenilek is actively involved in the academic programs across traditional departmental boundaries and in clinical practice at OSF Healthcare. In addition to his role in simulation, Dr. Vozenilek teaches master’s degree candidates in the fields of simulation, healthcare quality and safety, and is formally appointed in the UI Urbana-Champaign College of Engineering to teach biodesign. Dr. Barker and Dr. Vozenilek spoke on “Return on Investment Activity”.

Effective feedback and debriefing play a critical role in healthcare education in both simulated and workplace-based environments. Developed by KidSIM leadership in collaboration with global experts in simulation, Debrief2Learn supports clinical educators by sharing resources to guide faculty development and exploring the latest innovations. We are creating an online community of practice for health professions educators while advancing knowledge through cutting-edge collaborative research.

PACE Program

PACE is Pediatric Acute Care Education for health care providers. The PACE Program provides training on teaching for emergency physicians, pediatricians, family physicians, NPs, nurses and allied healthcare professionals using the latest evidence-based medicine practice. The PACE courses all have a simulation component and take place at the KidSIM Centre. Learners receive hands-on training in men as real as possible scenarios using high-fidelity patients.

The PACE Program offers the following courses:

- Pediatric Advanced Life Support (PALS) Provider
- Pediatric Advance Life Support Renewal
- The Pediatric Airway Course
- Basic Cardiac Life Support
- Pediatric Emergency Assessment, Recognition, and Stabilisation (PEARs) Provider Course
- Neonatal Resuscitation Program
- Emergency Nursing Pediatric Course (ENPC)
- Trauma Nurse Core Course (TNCC)

JOURNAL CLUB

KidSIM Fellows and Graduate Students participate in a regular monthly journal club, which serves three main purposes:

1. to review the latest evidence and best practices in simulation; and
2. for the trainees to be exposed to the various methods of conducting simulation-based research; and
3. to provide the trainees further experience in formal presentation skills.

ROUNDS

As the KidSIM program continues to grow, program leadership recognized the need to provide ongoing simulation-based professional development opportunities for all facilitators. As of the Spring of 2016, KidSIM has introduced monthly KidSIM Rounds. These hour long sessions are open to anyone who teaches in the program and includes a variety of both practical and academic topics.

DEBRIEF 2 LEARN

Debrief2Learn supports clinical educators by sharing resources to guide faculty development and exploring the latest innovations. We are creating an online community of practice for health professions educators while advancing knowledge through cutting-edge collaborative research.

LISA BARKER, MD

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PACE PROGRAM

VISITING PROFESSORS
Dr. Eppich is a pediatric emergency physician and Associate Professor of Pediatrics & Medical Education at Northwestern University Feinberg School of Medicine, where he directs the Feinberg Academy of Medical Educators. In addition to a Master in Education (Med) degree, in 2018 Walter completed a PhD in Medical Education from Maastricht University. His research involves qualitative methodologies, team reflexivity, healthcare debriefing, and teamwork in extreme environments. He focuses on how to talk within teams influences learning and performance in both simulated and clinical workplace settings. Walter has co-authored over 60 peer-reviewed articles and book chapters. In the spring 2018, he completed a field campaign to Antarctica to study teamwork in extreme environments. From 2012-2014 Walter served as a member of the Board of Directors of the Society for Simulation in Healthcare. Dr. Eppich spoke on “Learning through Talk: Exploring Synergies between Simulation and Workplace Learning”.

Dr. Chang is a board-certified Pediatric Emergency Medicine physician who held faculty positions at George Washington University / Children’s National Medical Center (Washington, DC) and now at the University of Southern California / Children’s Hospital Los Angeles. He works on a daily basis with medical students, residents, and fellows, as well as students in other healthcare disciplines closely and develops, teaches, and utilizes the most current educational technologies and techniques. His research interests in medical educational technology and increasing expertise in distance learning/A-learning has brought him as a Director of Technology within the International Simulation research network INSPIRE, invited international speaker on the use of distance learning, as well as the Faculty Advisor for the PEM/Network. Dr. Chang spoke on “Practical & Academic Considerations for integrating VR and AR to the Simulation Center Repertoire”.

Dr. Petrosiak is an emergency physician and trauma team leader at St. Michael’s Hospital and an Assistant Professor in the Department of Medicine at the University of Toronto. He has completed a Master of Science in medical education where he focused on the use of in situ simulation in procedural skill acquisition. Dr. Petrosiak’s field of research includes in situ simulation and simulation-based safety threats within acute care medicine. Dr. Petrosiak spoke on “High Performance Simulation Education – Lessons from Sports” and gave a workshop on “In Situ Simulation for Improved Patient Outcomes”.

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Dr. Donoghue became faculty at CHOP in 2005. Dr. Donoghue’s areas of academic interest include pediatric resuscitation science, CPR, airway management, and simulation education, and he has authored more than 75 articles and chapters in these areas. He has worked with the American Heart Association since 2006, serving as a member of the Pediatric Subcommittee of the Emergency Cardiovascular Care Committee for 6 years, followed by 4 years as a member of the Educational Science and Programs Subcommittee. He currently serves as the Vice-Chair of the Educational Writing Group for the AHA ECC. He served as a writing group member on the 2010 and 2015 AHA Guidelines for Emergency Cardiovascular Care Committee for 6 years, followed by 4 years as a member of the Educational Science and Programs Subcommittee. He currently serves as the Vice-Chair of the Educational Writing Group for the AHA ECC. He served as a writing group member on the 2010 and 2015 AHA Guidelines for Emergency Cardiovascular Care Committee for 6 years, followed by 4 years as a member of the Educational Science and Programs Subcommittee. He currently serves as the Vice-Chair of the Educational Writing Group for the AHA ECC.
The KidSIM Program welcomes a variety of learners from different programs and institutions. KidSIM continues to offer a large number and variety of sessions. The KidSIM Center provides four labs and two debrief rooms and has the ability to hold larger interprofessional simulation sessions, often running all 4 labs concurrently.

The KidSIM Center continues to maximize center usage by booking the space during off-peak hours in the evenings and weekends. Team training remains a main priority for the KidSIM Program. Team training continues to be a main priority for the KidSIM Program.

The KidSIM Program maintains a steady, yet impressive interprofessional rate.
SESSIONS
The KidSIM Program taught over 600 sessions in 2019. KidSIM continues to add new ground-breaking programs each year.


5481
LEARNERS
The KidSIM Program provided top quality education to over 5,000 learners in 2019. Learners come from diverse backgrounds, ranging from rural paramedic providers to attending pediatric intensivists to nursing students to family members (amongst many others).


SESSION HOURS
The KidSIM Program provided over 2,900 session hours in 2019. With the ability to run concurrent simulations in multiple labs, the KidSIM Program has been able to provide more learning opportunities than ever before, especially for large interprofessional teams.

The goal of the program is to conduct innovative, high-quality, simulation-based research to inform healthcare providers, administrators and families of best practices, which will optimize pediatric patient outcomes from illness. As lifesaving treatment in pediatric patients involves effective interprofessional care, we strive to conduct single and multicenter studies which involve various professions (nursing, respiratory therapy, paramedics, physicians etc) in order to optimize the impact of our research on patients.

The KidSIM-ASPIRE (Assessing Simulation in Pediatrics: Improving Resuscitation Events) Simulation Research Program at Alberta Children's Hospital was established to bring together an interprofessional group of Alberta-based leaders in clinical care, research methodology, education, human factors and psychology interested in improving the delivery of healthcare to sick infants and children.

Our team has developed a solid foundation which positions us well to address the main objectives of the acute and life-saving care pillar of ACH. Studies are formulated to identify novel and innovative methods of healthcare delivery in order to improve effectiveness and efficiency of care. In our collaborative research model, we also aim to facilitate the academic growth of young investigators and trainees by exposing them to established mentors both locally and worldwide and nurturing the skills necessary to become successful researchers.

After completion of several successful large-scale studies that have provided significant results and insight into acute care, KidSIM-ASPIRE is committed to translating the knowledge gained by the research findings. National pediatric emergency and pre-hospital care conferences, annual nursing education sessions, local nursing conferences, and several simulation conferences are recent venues where the research team has presented findings. Perhaps most importantly, these presentations focused on how recent findings need to be applied to improve provider education and patient care.

In 2011, members of the KidSIM-ASPIRE team met to develop a common research agenda, and to identify priorities and action items to help the collaborative achieve its research goals. The results of this consensus process helped to inform the development of the 6 key KidSIM-ASPIRE research pillars, each with a specific aim for research.

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KIDSIM-ASPIRE PROGRAM

CPR AND CARDIAC ARREST
Develop, assess and implement novel techniques for improving CPR and care of pediatric patients suffering from cardiac arrest.

FAMILY CENTERED CARE
Design and evaluate unique simulation-based training opportunities for families of pediatric patients to help enhance the care they provide to their children in the home environment.

TECHNOLOGY IN THE RESUSCITATION ROOM
Develop and study new technology designed to interact with healthcare providers in the resuscitation environment to improve process of care and patient outcomes.

TEAM TRAINING
Develop, assess and implement innovative techniques for team training in order to improve life-saving care for pediatric patients.

DEBRIEFING AND FEEDBACK
Evaluate existing and new methods of post-simulation and post-resuscitation debriefing for the purposes of improving healthcare provider performance and patient outcomes.

INTERPROFESSIONAL EDUCATION
Assess and evaluate the impact of various models of interprofessional training on healthcare provider skills, knowledge and behaviors.
INTERNATIONAL PROGRAM

MISSION
To improve the quality of healthcare provided to infants and children around the world by collaborating with global partners through education, research and innovation using simulation.

PRIMARY STRATEGIES

INTERPROFESSIONAL EDUCATION
KidSIM has a wealth of experience in the provision of interprofessional simulation-based education, where healthcare providers from various professions train together in a collaborative work environment. Training in this type of environment using simulation helps to improve collective knowledge and skills, teamwork, communication and efficiency, which ultimately improve the care delivered to real patients.

We train fellows to be future global leaders in simulation, who will take the knowledge, skills and experience from KidSIM fellowship back to their respective countries in order to save lives and improve outcomes of children in their area of the world.

RESEARCH
As one of the most successful simulation research programs in North America, KidSIM-ASPIRE will conduct research to study the impact of the education and innovation being delivered through KidSIM international programs, and also work hard to share and integrate knowledge acquired from existing research to global partners.

FACTOR DEVELOPMENT
As some educational techniques in simulation are more effective than others, our team have worked hard disseminate this knowledge to simulation educators locally and internationally by creating an instructor training course called ASSET.

ASSESSMENT & EVALUATION
As we assess and evaluate the impact of various models of interprofessional training on healthcare provider skills, knowledge and behaviors.

SIMULATION EXPERTISE & PROGRAM BUILDING
KidSIM has been the “model” program in North America for growth based on little operational funding while keeping the education “free” for the learners. Our experience in collaboration, identifying and grooming champions and growth based on limited resource will be a valuable asset to developing programs.

MISSION
To improve the quality of healthcare provided to infants and children around the world by collaborating with global partners through education, research and innovation using simulation.

71
INTERNAL GRANTS


2019 – 2020 $3,000 CAD A comparison of virtual reality vs cadaveric training for intubation skills. Investigator: Omar Damji, Alberta Children’s Hospital/University of Calgary. Funded by: Grant Innes Resident Research Award.


2019 $5,000 CAD A comparison of virtual reality vs cadaveric training for intubation skills. Investigator: Omar Damji, Alberta Children’s Hospital/University of Calgary. Funded by: AIHS Summer Research Studentship Award.

EXTERNAL GRANTS

Patterns of Inattentional Blindness during Cardiac Arrest Care: Do Healthcare Providers See and Correct Critical Errors?

Dr. Adam Cheng, Dr. Vince Grant, Dr. Jeffrey Lin, Dr. Elaine Gilfoyle, Tyler Williamson, Jeff Caird

Each year, more than 15,000 infants and children in Canada and the United States receive cardiopulmonary resuscitation (CPR) as a treatment of cardiac arrest. Survival rates from pediatric cardiac arrest are very poor. Providing effective care involves effective team function, dynamic leadership and situational awareness amongst all team members. In order to improve the quality of care provided to cardiac arrest patients, it is imperative to have a better understanding of the types of errors that are missed during cardiac arrest. Inattentional blindness is a phenomenon defined as the failure to see things that are in plain sight on account of being unexpected. The notion of inattentional blindness has been largely unexplored in healthcare, and specifically, in the context of resuscitation. In our study we propose to describe patterns of inattentional blindness by identifying the types of mistakes that are missed by team leaders and members during cardiac arrest. This study is funded by the Laerdal Foundation for Acute Medicine, the Department of Pediatrics Innovation Award (University of Calgary), the Cumming School of Medicine Bridge Grant, and a Seed Grant from the University of Calgary.

Simulation based medical education (SBME) has become a well-established and integral component of various specialty and subspecialty training programs across North America. Recent studies demonstrate that lessons learnt via SBME positively impact learners’ knowledge and skills, translate to real changes in their daily practice and ultimately improve patient outcomes. Furthermore, where positive patient outcomes are associated with reductions in complications, the cost saving gained by avoidance of the complications can be shown to pay for the SBME program several times over.

Improving Cardiac Arrest Outcomes with Resuscitation Research (iCORE): Exploring the Role of Data-Informed Debriefing, Digital Charting, and Situational Awareness

Dr. Adam Cheng, Dr. Elaine Gilfoyle, Dr. Vincent Grant, Dr. Jeffrey Lin, Jennifer Davidson

Debriefing has been shown to improve provider performance, while CPR data-informed debriefings have been associated with a near-doubling of the survival rate from cardiac arrest in one single-center study. Unfortunately, CPR data is rarely used during debriefing at most institutions, causing providers to consistently overestimate the quality of CPR delivered during care. Part of the issue is lack of reliable data. Paper charting of resuscitation events is highly inaccurate, thus leading to unreliable data (that serve as stimulus for discussion during debriefing) for key variables known to influence survival from cardiac arrest (eg. time to epinephrine administration, defibrillation, and/or initiation of CPR). Recently, digital charting in the form of a handheld tablet device offers a novel alternative to paper charting during resuscitation. Furthermore, new CPR feedback defibrillators collect quantitative CPR data that can be used during debriefing. The combination of quantitative data from a digital chart and the CPR feedback defibrillator has the potential to enhance the quality and impact of debriefings after cardiac arrest. In this study, we will assess the impact of using quantitative data collected from a digital chart and CPR feedback defibrillator during post-event debriefings. This study is funded by the Alberta Children’s Hospital Foundation.
RESEARCH PROJECTS

Improving Quality of CPR with Distributed Practice and Real-time Feedback in Pediatric Healthcare Providers – A Randomized Trial and Cost-effectiveness Analysis

Dr. Jeffrey Lin, Dr. Adam Cheng, Dr. Vincent Grant, Dr. Gillian Currie and Dr. Kent Hecker

Current CPR training (i.e. BLS recertification course) does not utilize a competency-based approach, resulting in poor short and long term retention of CPR skills. The goal of this project was to assess the efficacy and cost effectiveness of a new CPR training method (distributed CPR training with real-time feedback in the workplace). We demonstrated that in pediatric healthcare providers, distributed CPR training with real-time feedback results in improved long term retention of CPR and increased cost effectiveness compared to annual CPR recertification. Our results have informed changes to 2020 International Resuscitation Guidelines, and informed the design of courses offered by the American Heart Association and the Heart and Stroke Foundation of Canada. This project was funded by Laerdal Foundation forthe Department of Pediatrics Innovation Award (University of Calgary).

ImPACTS (Improving Pediatric Acute Care through Simulation)

Dr. Kerri Landry, Jenny Chatfield, Dr. Adam Cheng, Dr. Vince Grant, Dr. Jeffrey Lin

The ImPACTS 2018 Protocol is an innovative improvement intervention involving Children’s Hospitals “hubs” collaborating with Community Hospital “spokes” supported by a central “core” based out of Yale University with the goal of improving overall pediatric readiness at “spokes” supported by a central “core” based out of Yale University. Integration of new technology, such as a CPR feedback defibrillator, has the potential to be a disruptive force during patient care. The goal of this project was to assess the impact of a CPR Coach on the quality of CPR during simulated pediatric cardiac arrest. We demonstrated that the integration of a CPR Coach improves the quality of CPR during cardiac arrest. The CPR Coach concept has been embraced by institutions around North America, and will be incorporated into the newest versions of the PALS and ACLS courses in 2020. This project was funded by the Heart and Stroke Foundation of Alberta and the Cumming School of Medicine Bridge Grant Fund.

A Simulation-based Intervention Teaching Illness Management Skills to Caregivers of Children with Adrenal Insufficiency: a Randomized Controlled Study

Dr. Rebecca Perry, Dr. Adam Cheng, Dr. Vincent Grant, Helen Catena, Amy Davidson

Permanent adrenal insufficiency is a chronic lack of certain stress hormones in the body. It is an uncommon but potentially life-threatening condition in children. At times of stress or illness these children require urgent medications, including some by injection. As a result, parents and caregivers of these children must be skilled at managing the illness, recognizing the need for injections and providing the injections. Simulation provides the opportunity for these parents to have better opportunity practice these skills, consolidate knowledge and work through scenarios they may encounter as a result of their child’s illness. This research will assess the effectiveness of family centered, simulation-based training for adrenal insufficiency management in a home environment. This project is funded by the Department of Pediatrics Innovation Award.

How Long do Caregivers of Children with Tracheostomies Retain Life-saving Skills After Formal Education and Training with Simulation?

Dr. Andy Marie Piatt, Isatina Dass, Dr. Karen Kim, Dr. Manelena DiBartolo, Dr. Glenda Bendik, Jenny Chatfield, Dr. Vince Grant, Dr. Adam Cheng, Dr. Ian Mitchell

This study assessed effectiveness and duration of retention of knowledge and skills gained by caregivers of children with tracheostomies. Children with tracheostomies are an important subset of medically fragile children. Caregivers must act immediately if tracheostomy obstruction or decannulation occurs. The Canadian Thoracic Society recommends caregivers complete a formal education program. Simulation-based learning is beneficial in improving skills in emergency response. The team at the Alberta Children’s Hospital (ACH) developed educational modules and a simulation-training program for caregivers. Research recruitment and simulation assessment of skill and knowledge retention of management of a blocked trach completed in January 2020 and data analysis is underway.

There was a positive correlation between time from initial training and the time to complete the tracheostomy change. Overall, 40% of participants scored higher on the self-efficacy survey after simulation. In the past year, 5 families went through the program. 85 caregivers were trained in a formal caregiver training program, including VRSA staff for the 2 medically complex children who live at Cubhouse, bus LPN staff, school LPN support staff, and extended family members. In the past year, all 29 caregivers took part in the program. 29 participants completed the entire program. The team at the Alberta Children’s Hospital (ACH) developed educational modules and a simulation-training program for caregivers. Research recruitment and simulation assessment of skill and knowledge retention of management of a blocked trach completed in January 2020 and data analysis is underway.

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Measuring the Cognitive Load of Expert and Novice Facilitators During the Debriefing Phase of a Clinical Simulation.
Dr. Jolene Haws, Dr. Vincent Grant, Dr. Alejandra Boscan, Dr. Jeffrey Lin, Dr. Adam Cheng.

Facilitating a simulation debrief is a complex, dynamic skill that places significant demand on facilitators’ working memory. Cognitive load theory proposes that our working memories have a finite ability to process information. When the cognitive load of the task is high our working memory may be overwhelmed, and as a result, performance on the task suffers. The objective of the study is to measure the cognitive load of facilitators during the debriefing phase of a clinical simulation. We aim to identify whether cognitive load differs between novice and expert facilitators, and between different key events during the debriefing process. We will subsequently create faculty development tools to reduce the cognitive load of facilitators and ultimately improve the quality of education delivered to learners in simulation debriefing. This project is funded by an Office of Health and Medical Education Scholarship (OHMES) Health Science Medical Education Research and Innovation Grant.

Every minute counts: Uncovering and mitigating delays in Maternal Cardiac Arrest First Response
Dr. Fatemah Qasem, Dr. Jeffery Lin, Mirette Dube, Dr. Christopher Dyte, Dr. Adam Cheng

Maternal cardiac arrest is underreported and continues to occur at rate of 1:20,000 pregnancies. During these critical events aggressive maneuvers and multidisciplinary team efforts are required because of the anatomical and physiological changes associated with pregnancy, in addition to taking care of two patients. Advanced cardiac life support (ACLS) must be rapidly administered. Previous work suggests deficits in cardiac arrest care during maternal cardiac arrest. The primary goal of this study is to characterize the quality of actions by first responders during simulated in-hospital maternal medical emergencies. Secondary goal is to determine the systems issues that contribute to a delayed response and initiation of ACLS. Specific objectives are: (1) To examine critical delays by measuring the median duration of the interval between when a resuscitation maneuver was indicated and when it was initiated by first responders; (2) To describe the type and frequency of resuscitation errors identified as deviations from AHA guidelines during obstetric cardiac arrest. By addressing this gap in the literature, we hope to highlight areas of future education and/or innovation aimed at improving performance during maternal cardiac arrest care; 3.) The uncover systems issues reported that contribute to a delay in performing ACLS and/or reduced quality and safety of care.

Patterns of Inattentional Blindness during Perioperative Cardiac Arrest: Do Healthcare Providers See and Correct Critical Errors?
Dr. Fatemah Qasem, Dr. Jeffery Lin, Dr. Vincent Grant. Dr. Adam Cheng

Cardiac arrest in the operating room is a rare but potentially catastrophic event with mortality rates greater than 50%. Recent CPR guidelines published by the American Heart Association (AHA) and the Heart and Stroke Foundation of Canada (HSFC) describe how high quality CPR improves survival rates and neurological outcomes from cardiac arrest. Despite CPR training, adherence rates with chest compression (CC) performance guidelines are alarmingly low in many pediatric hospitals. In this study, we aim to determine the frequency of CC and medication-related errors that are undetected by resuscitation teams during management of a simulated pediatric cardiac arrest with average noise level (85 dBA) vs high noise (100 dBA) in the operating room during resuscitation. We are planning on conducting a prospective observational study, using a simulated perioperative cardiac arrest scenario in Alberta Children’s Hospital. Each team of participants will be randomized into two groups; group A will work in a noise environment of 80 dBA and group B will work in a noise environment of 100 dBA. Participants will be wearing eye tracking devices during the scenario (Tobi Pro Glasses™) designed to capture areas of interest (AOI) / visual fixation. We hypothesize that CC and medication errors are frequently left undetected and uncorrected. We also hypothesize that “look but not act” events are a frequent occurrence during simulated pediatric cardiac arrest.
Dr. Suzette Cooke, Dr. Charlotte Barnard, Dr. Amorepreet Sandhu, Dr. Vincent Grant, Helen Caleno

RELATE is a tool for healthcare professionals to use to navigate difficult and challenging situations with patients and caregivers of children in hospital. A full day workshop was created to help healthcare workers be trained and provide them with the opportunity to practice some of these challenging scenarios. The curriculum in the morning consisted of developing an understanding of how communication breakdowns occur and the results of this as well as the strategies and tools used to navigate these situations. The interprofessional participants engaged a variety of simulations with professional actors serving in the role of parents and caregivers to either navigate the situation or to be an observer of the situation. These scenarios are commonly encountered and have the potential to cause deterioration or destruction of trust, garner trust or rebuild trust. After each simulation the participants and the observers were debriefed allowing them to gain insight from that participant on how the conversation went and what went well and what could have been improved. Preliminary analysis of the data demonstrated that participants engaged a variety of simulations with professional actors serving in the role of parents and caregivers to either navigate the situation or to be an observer of the situation. These scenarios are commonly encountered and have the potential to cause deterioration or destruction of trust, garner trust or rebuild trust. After each simulation the participants and the observers were debriefed allowing them to gain insight from that participant on how the conversation went and what went well and what could have been improved. 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**PRESENTATIONS**

1. Advanced Simulation Skills for Educators and Teachers, ASSET-ADVANCED Course – Calgary, AB - February 2020
3. Advanced Simulation Skills for Educators and Teachers, ASSET-FOUNDATIONS Course – Calgary, AB - January 2020
5. Exploring Debriefing Approaches in an environment using computer games engines (Unity3D). The Pediatric Critical Care Transport Team (PCCTT) uses ambulances, fixed wing aircrafts, and helicopters to transport critically ill children to the Alberta Children’s Hospital (ACH). The tool offers an inexpensive way to train staff and is able to simulate different experiences that require instantaneous action. The summer focused on creating a model of the helicopter that looked similar to the one used as an air ambulance. This included specific equipment such as the ventilator, stretcher, defibrillator, space infusion pump and the central storage unit.

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33. “Is it real, or is it Memorex: The Essentials of Simulation in Medical Education (and beyond)” - University of Calgary, Department of Pediatrics Education Rounds, Calgary, AB - May 2019. Vince Grant.
38. “Approach to the Learner in Difficulty During Debriefing” – Montreal Children’s Hospital, Montreal, QC - April 2019. Vince Grant.
40. “Approach to the Learner in Difficulty During Debriefing” – McGill University Nursing Simulation Centre, Montreal, QC - April 2019. Vince Grant.
43. “Simulation to Enhance Trauma Care” – Trauma Association of Canada 2019 Conference, Calgary, AB - February 2019. Vince Grant.
44. Advanced Simulation Skills for Educators and Teachers, ASSET:ADVANCED Course – Calgary, AB - February 2019.
ABSTRACTS


BOOKS / BOOK CHAPTERS


AWARDS & DISTINCTIONS


12. Roze des Ordons AL, Gaudet J, Grant V, Harrison A, Millar K, Lord J. From the Emergency Cardiovascular Care Committee and the Get-with-the Team; and First Aid Task Forces. Circulation. Published online November 14, 2019. DOI: 10.1161/CIRCULATIONAHA.119.03734.  
15. Soar J, Maconochie I, Wybkyl M., ... Cheng A et al. 2019 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations: Part 2: Adult Cardiovascular Care; Adult Life Support; Neonatal Life Support; Education, Implementation and Team; and First Aid Task Forces. Circulation. Published online November 14, 2019. DOI: 10.1161/CIR.0000000000000374.  


