KidSIM Fellowship in Simulation Education and Research

Alberta Children's Hospital, University of Calgary

Fellowship Program Directors:

Dr. Adam Cheng, MD, FRCPC
Adam.Cheng@albertahealthservices.ca

Dr. Vincent Grant, MD, FRCPC
Vincent.Grant@albertahealthservices.ca

Program Coordinator:

Karly Luca
Karly.Luca@ahs.ca

Program Outline

Introduction:

The KidSIM Pediatric Simulation Program at the Alberta Children's Hospital is offering a Fellowship in Simulation Education and Research. This Fellowship is offered in collaboration with the Ward of the 21st Century and the Medical Education Specialization Program at the University of Calgary.

The overall aim of this fellowship is to initiate the process of preparing the candidate for an academic career as a clinician educator, with advanced knowledge and skill in the delivery of simulation-based education and research. The program will include both:

- Training and mentorship in simulation-based curriculum development, teaching, and learning.
- Designing and conducting of innovative simulation-based research relevant to the field of health professional education and practice.

KidSIM Simulation 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 (ie outreach simulation, rounds).
7. Demonstrate a commitment to medical education by considering enrolment in a graduate degree program in education (Masters or PhD).

KidSIM Simulation Program Overview

Fellowship Director: Dr. Vincent Grant, MD, FRCPC
www.kidsim.ca

The KidSIM Pediatric Simulation Program at Alberta Children's Hospital (ACH) 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 grown significantly and is responsible for the training of over 4,500 learners per year. These learners come from all levels of training, from undergraduate learners all the way through to practicing health professionals. They come from diverse backgrounds, everything from rural EMS providers to operating room nurses to attending pediatric intensivists, among many others, both at the Alberta Children's Hospital site, as well as via outreach education to providers in the broader Calgary community, and regional and rural healthcare providers in Southern Alberta and Southeastern British Columbia.

The KidSIM program works to provide learners surrogate clinical experience 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 as closely as possible. In doing so, it is hoped that the learners experience the pressure and stressors 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). Evaluation of the scenarios and of the program as a whole, are overwhelmingly positive, with a common theme being the request for more and more sessions. In the first 7 years of the program, there has been incredible growth in the number and diversity of learners, as well as growth in the number of areas incorporating simulation into their overall education plan.

The mission of the KidSIM Program is to support interprofessional education by working together with physicians, nurses and allied health care providers to ensure optimal accessibility, innovation, leadership and excellence in pediatric experiential learning and simulation education. Simulation is an essential component to meet current and future demands related to healthcare education, experiential learning, team crisis resource management, patient safety, workforce utilization, and clinical research.

Since 2005, the program has grown from one mannequin, one basement laboratory at the former ACH site, and a handful of trained educators to one of the broadest and busiest pediatric simulation programs in the world. Through on-going support from the Department of Pediatrics and the Alberta Children's Hospital Foundation, the program now boasts greater than 80 trained simulation education facilitators, 12 high-fidelity mannequins spanning infancy to adolescence, and the largest Pediatric simulation centre in Canada, a 3,900 square foot facility on the 4th floor of the ACH.

The KidSIM Program has become known for several innovative programs, including: 1) an interprofessional training program for undergraduate students from the faculties of medicine, nursing and respiratory therapy, for whom this opportunity is the first they have had in their clinical training to work and learn alongside other health professionals; 2) a simulation program aimed at providing families hands-on education and feedback about how to look after their children with significant medical needs; 3) an internationally- recognized faculty development curriculum called ASSET: Advanced Skills for Simulation Educators & Teachers; 4) a highly regarded and successful simulation outreach program to the regional and rural centres in Southern Alberta and Southeastern British Columbia; and 5) the KidSIM-ASPIRE Research Program (Assessing Simulation in Pediatrics: Improving Resuscitation Education) aimed at performing high quality research in the areas of debriefing and feedback, interprofessional education and team training, simulation in the context of family-centred care, faculty development and maintenance of facilitation competence, and evaluation of new and novel technologies in both the simulated and real clinical environments.

The KidSIM Program is a proud partner of eSIM, the provincial simulation program in the Province of Alberta, as well as a founding member of the Canadian Pediatric Simulation Network. The Program is also affiliated with INSPIRE, the International Network for Simulation-based Pediatric Innovation, Research and Education, (www.inspiresim.com) and IPSS, the International Pediatric Simulation Society (www.ipedsim.com).

KidSIM-ASPIRE Simulation Research Program Overview

Director: Dr. Adam Cheng, MD, FRCPC, FAAP

The KidSIM-ASPIRE Simulation Research Program aims to address the pressing need for assessment and evaluation of simulation-based education and interventions in life-saving care for children. The mission of the KidSIM-ASPIRE program: “Assessing Simulation in Pediatrics: Improving Resuscitation Education” is to facilitate high-quality simulation-based research through single and multi-center studies to inform healthcare providers and families of best practices which will optimize patient outcomes.

To support and build this vision, the KidSIM-ASPIRE program has developed four different research pillars targeted to address key issues in pediatric care. For each research pillar, specific aims, along with short and long term goals were identified to help guide future research in each of these areas;

1. Resuscitation and Cardiac Arrest;
2. Quality Improvement and Patient Safety;
3. Artificial Intelligence;
4. Return On Investment.

Table: Specific Aims for 4 Research Pillars of KidSIM-ASPIRE

Research Pillar	Specific Aim
Resuscitation and Cardiac Arrest	Develop and evaluate novel techniques and strategies for improving resuscitative care of pediatric patients suffering from cardiac arrest.
Quality Improvement and Patient Safety	Design and evaluate simulation-based interventions to enhance patient safety and improve patient outcomes.
Artificial Intelligence	Design, develop and evaluate the use of artificial intelligence to improve clinical skills training and assessment.
Return On Investment	Assess and evaluate the cost effectiveness of simulation-based training in healthcare.

The KidSIM-ASPIRE research program has become highly popular amongst trainees interested in simulation-based or medical education research. Our research team is actively supervising residents, fellows and PhD trainees who are conducting simulation-based research projects within our program. Each project has been carefully selected and designed to help target the aim of one or more of the research pillars of our program.

Additionally, the KidSIM-ASPIRE simulation research program is a world leader in simulation-based research, as evidenced by active involvement in multicenter studies both as the lead site and as a collaborative site. KidSIM-ASPIRE is a leading research site within the International Network for Simulation-based Pediatric Innovation, Research and Education (INSPIRE). The INSPIRE network (www.inspiresim.org), was co-chaired and co-founded by Dr. Adam Cheng of ACH, and is the largest international pediatric simulation network in the world, with over 100 pediatric hospitals and simulation programs participating in over 40 ongoing single and multicenter research projects. As a leading research site, KidSIM-ASPIRE helps to organize and coordinate the infrastructure, governance and administration of the entire INSPIRE network, and is currently helping to build INSPIRE technology and resources to support ongoing research projects.

KidSIM Fellowship Program: Key Partners

Medical Education Specialization Program
Department of Community Health Sciences, University of Calgary
Liaison to KidSIM: Dr. Tanya Beran, PhD
http://www.ucalgary.ca/communityhealthsciences/prospective-students/potential-supervisors/medical-education/faculty-interested-medical-education

Medical Education prepares health providers to be educators and researchers who can work as

program administrators, health educators, and health education researchers to address topics relevant to medical education. As a result of several social, educational, scientific and resource pressures, medical schools increasingly require staff with degrees in medical education. Professionalism in medical education is enhanced with the MSc degree with more advanced scholars and researchers attaining the PhD degree. The Medical Education Specialization Program at the University of Calgary has a team a dedicated of interprofessional researchers and educators who provide supervision and mentorship for postgraduate trainees in medical education.

Ward of the 21st Century (W21C)
University of Calgary
W21C Liaison to KidSIM: Dr. Jeff Caird, PhD
http://w21c.org/about-us/overview

The Ward of the 21st Century is a research and innovation initiative based in the University of Calgary and the Calgary zone of Alberta Health Services (AHS). The collaborative space and diverse team enables both researchers and industry experts to bring new ideas, prototypes, or health care products for testing in pre-clinical and clinical environments - to enhance patient safety and quality of care both now and in the future. The overall mission of W21C is to innovate, create, educate, and evolve to build new paradigms of health care delivery.

Fellowship Program Components

The KidSIM Simulation Fellowship Program will comprise of educational and research objectives, which will be achieved through involvement in new and ongoing program curricula and projects, along with participation in educational rounds delivered at Alberta Children's Hospital and in collaboration with our program partners.

Fellowship Activities

1. Simulation educator training via the Advanced Skills for Simulation Educators & Teachers (ASSET) Courses
2. Participation as an educator in existing simulation curriculum and programs
3. Development of new simulation curriculum
4. Conduct a simulation-based research project
5. Participation in educational and research rounds
6. Attendance at committee meetings (Pediatric Simulation Education Committee and KidSIM-ASPIRE research meetings)

7. Participation in organizing / attending journal club
8. Attendance at regional, national and/or international simulation conferences
9. Attendance at regional, national and/or international simulation research meetings
10. Self-directed learning

The following is a complete list of educational, research and leadership topics that will be covered during simulation fellowship training.

Simulation-Based Education

1. Principles of Adult Learning
2. The Nature and Nurture of Medical Expertise
3. Knowledge, Levels and Systems
4. Transfer of Learning
5. Clinical Reasoning
6. Information Management in Healthcare Education Scholarship
7. Individual Learning Styles
8. Simulation in Medical Education - Theory
9. Simulation in Medical Education - Application
10. Teaching and Learning Psychomotor Skills
11. Curriculum Design
12. Web-based Curricula (optional)
13. Giving Effective Feedback
14. Brief Structured Observation/One Minute Preceptor
15. Presentation Skills Workshop – Teaching in Large Groups
16. Teaching in Small Groups
17. Orienting the Learner/Setting and Discussing Goals and Objectives
18. Professionalism Instruction and Assessment
19. Self Assessment
20. Program Evaluation
21. Integrating Assessment into Clinical Teaching
22. Evaluating Effective Teaching/Teacher Effectiveness Ratings

Simulation-Based Research

23. Research Methods (Quantitative and/or Qualitative)
24. Publishing in Healthcare Education Journals
25. Assessment Methods in Healthcare Education Research

Leadership and Career Development

26. Educational Portfolios
27. Educational Scholarship in the Academic Health Center
28. Leaders as Scholars and Scholars as Leaders

29. Leading Change in Organizations
30. Running Effective Meetings

Application

Please visit our website, www.kidsim.ca/fellowship.html for application details. Deadline for applications is November 30th for a following July 1st start date.

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