
Dr. Herbert Ho Ping Kong
Centre for Excellence in Education and
Practice

Annual Report 2011

Simulation and Scholarship

Toronto Western Hospital - University Health Network



Centre for Excellence
in Education and Practice

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FELLOWS UPDATE

Lisa Richardson, MA, MD, FRCPC

Lisa Richardson continues to pursue her inquiry into the effects of simulation on the medical gaze. Lisa completed her Masters in Science and Education Studies at York University in August 2011. Her thesis was entitled: “Transducing Harvey(R), the cardiopulmonary simulator: learning cardiac auscultation in a digital era”. She is a full member of the division of GIM at University Health Network- Mount Sinai Hospital, and has been recognized with prestigious undergraduate and postgraduate teaching awards in 2010 and 2011.

Matthew Sibbald, MHPE, MD, FRCPC

The last year saw Matt Sibbald engage fully in his program of research in cognitive processes in diagnostic decision making. He has expanded his platform of inquiry to include ECG interpretation by residents, in addition to his two seminal studies using Harvey as a platform for understanding diagnostic reasoning. Matt has defended his Masters in Health Professions Education at the University of Maastricht in the Netherlands in June 2011. His clinical work has focused on interventional cardiology. As recognition for his foundational contributions to the development of CEEP, Matt has been named the inaugural Chang Fellow in Medical Education Studies.

David Frost, MD, FRCPC

David Frost completed the Master Teacher Program at the University of Toronto and has been recruited as a full member of the Division of General Internal Medicine at University Health Network-Mount Sinai Hospital. David is expanding on his pioneering educational initiative on teaching cardiac auscultation skills to Family Medicine trainees.

This program has already produced a high impact publication - one of the first to document an effect of simulation based education on clinical resource allocation. This year's teaching sessions will expand to include three additional Family Medicine teaching sites. David is also developing innovative measures for assessing use of echocardiography amongst practicing physicians.

Luke Devine, MD, FRCPC

After completing his Chief Medical Resident year and obtaining his Royal College Fellowship, Luke Devine went to the University of Miami to pursue a fellowship in Simulation at the renowned Gordon Centre for Medical Education. Under the expert tutelage of Dr. Barry Issenberg, one of the worldwide leaders in simulation-based education, Luke was able to develop valuable skills in simulation. These included facilitation and debriefing for critical care scenarios, programming Harvey to mimic different pathological states and implementing curricular programs incorporating simulation. As a result of this experience Luke brings back unique skills to UHN-MSH, where he is presently a clinical associate physician. His scholarly activities in the upcoming year include presentations at the meeting of the Society for Simulation in Healthcare and a review article in the Mount Sinai Journal of Medicine. He is pursuing a Masters in Health Professions Education at the University of Maastricht, in the Netherlands.

ADMINISTRATIVE STRUCTURE

I. CEEP Advisory Board

In 2011 the CEEP administrative structure was further consolidated by the creation of the CEEP advisory board. Composed of Mr. Ray Chang, Dr. Herbert Ho Ping Kong, Dr. Rodrigo Cavalcanti, Dr Brian Hodges and Ms. Debbie Findlay, the advisory board will provide input on CEEP's direction and strategic advice on projects, development and fundraising, as well as advising on key partnerships locally, nationally and internationally.

II. CEEP Vision Retreat

On May 11, 2011, key stakeholders in CEEP's educational endeavors came together to establish key programmatic directions and develop an outline and vision for future collaborations. Present were Drs. Howard Abrams, William Coke, Herbert Ho Ping Kong, Lisa Richardson, David Frost, Matt Sibbald and Rodrigo Cavalcanti.

Consensus was reached in maintaining CEEP's foundation on outstanding clinical expertise and ongoing development of human resources in clinical education, with a particular focus on generalists. The programmatic discussion landed on a broad mandate to develop initiatives that enhance the teaching of bedside clinical skills through. This will build on the model of serving as an "incubator" for innovative educational programmes in physical diagnosis, diagnostic reasoning, empathy and communication skills. While projects to date have utilized the platform of technology in education, this focus should be broadened and investigated.

EDUCATIONAL INNOVATIONS

I. Hybrid simulation: teaching communication and technical skills

CEEP Projects in hybrid simulation were implemented for trainees in internal medicine at both the PGY2 and PGY4 level. These included the knee arthrocentesis module and the central venous catheter insertion.

The knee arthrocentesis IPPI combines a rubber benchtop model with a standardized patient. The setup requires trainees to interact with a real person while practicing their technical skills. This humanizes the simulation exercise and allows trainees to practice under various levels of challenges in communication.

For the more senior (PGY4) trainees we provided an exercise in professional boundaries, in which the standardized patient invited them for a social function. The debriefing of this experience allowed trainees to explore an encounter with which they had limited experience, enriching the discussion to encompass issues in communication and professionalism in an authentic interaction.



The Central venous catheter insertion IPPI combined 3 simulation modalities: a benchtop rubber model, a standardized patient and standardized nurse, and monitors that simulated physiologic changes during the procedure.



II. Enhancing Collaboration and Communication through Simulation

The use of multimodal simulation in an IPPI format, including simulated patients and health professionals, provides the chance to teach and assess communication skills in the CanMEDS collaborator and communicator competencies. Furthermore, the integration of an interactive vital signs monitor allows for a realistic representation of changes in clinical status that require trainees to skillfully interact with the simulated nurse in addressing the situation: e.g. ordering saline infusion for decreases in blood pressure, repositioning the guide wire in response to ventricular ectopy.



The multimodal simulation also allows for varying amounts of difficulty, allowing both technical and human-factors skills to be assessed over a range of ability. In particular, providing challenges in the non-technical aspects of the scenario (for example having an inexperienced nurse that requires detailed directions or introducing distracting changes on the monitor) allows for increases in cognitive load, and provides unique opportunities for learning. As well, varying the cognitive load may be a useful way of teaching and assessing more experienced trainees, such as the PGY4s in GIM.

Both IPPI projects were presented at international medical education meetings in 2010-11.

III. Real time data collection through a tablet platform

Another groundbreaking educational innovation by CEEP has been the successful implementation of real time data collection of data using an iPad platform. Dr. Matthew

RODRIGOS 9:05 PM 42% WK
Mini-CEX, September, 2nd
Date: 2010-09-02 Evaluator: Rodrigo Cavalcanti Resident: Dina Shakir Year: R-3
Patient Problem/DX: problem
Setting: Ambulatory In-Patient ED Other...
Patient:
Age: 22 Sex: Male Female New Follow-up
Complexity: Low Medium High
Focus: Data Gathering
< Back Next >
DESCRIPTORS OF COMPETENCIES DEMONSTRATED DURING THE MINI-CEX Medical
Interviewing Skills: Facilitates patient's telling of story; effectively uses questions/directions to obtain accurate, adequate information needed; responds appropriately to affect, non-verbal cues.
Physical Examination Skills: Follows efficient, logical sequence; balances screening/diagnostic steps for problem; informs patient; sensitive to patient's comfort, modesty.
Humanistic Qualities/Professionalism: Shows respect, compassion, empathy; establishes trust; attends to patient's needs of comfort, modesty, confidentiality, information.
Clinical Judgment: Selectively orders/performs appropriate diagnostic studies; considers risks, benefits.
Counseling Skills: Explains rationale for test/treatment; obtains patient's consent; educates/counsels regarding management.
Organization/Efficiency: Prioritizes; is timely, succinct. Overall Clinical Competence: Demonstrates judgment, synthesis, caring, effectiveness, efficiency.
Note 1: Reprinted with permission from the American Board of Internal Medicine, www.abim.org
Note 2: Discussed in: Honan JJ, Bark L, Arnold GK, Konrad HL. The mini-CEX (Clinical Evaluation Exercise): a preliminary investigation. Ann Intern Med 1995; 123:795-9.
Mini-CEX 1 Records 1 of 1/2

Sibbald has developed software for dynamic collection of data for the studies of diagnostic reasoning using the Harvey platform. The program randomizes trainees to different questions, collects their responses, instantly marks answers and emails trainees with individualized feedback on their performance.

CEEP educators are also implementing an app for mobile devices that will facilitate the collection and collation of directly observed assessment of clinical skills in clinical environments.

PRESENTATIONS 2010 - 2011

Accepted for presentation at the International Association for Medical Education AMEE Sept 4-8, 2010 Glasgow, Scotland

- What do mannequins teach us? Lisa Richardson

Presented at the International Association for Medical Education AMEE Sept 4-8, 2010 Glasgow, Scotland

- Simulator-based cardiac auscultation instruction improves diagnostic accuracy and resource utilization among family medicine trainees. DW Frost, D Toubassi

Presented at the RCPSC International Conference on Residency Education Sept 23-25, 2010 Ottawa, ON

- Cognitive bias from clinical context and resident diagnostic accuracy on a high-fidelity cardiopulmonary simulator. M Sibbald, L Stroud, R Cavalcanti
- Simulator-based cardiac auscultation instruction improves diagnostic accuracy and resource utilization among family medicine trainees. DW Frost, D Toubassi
- Integrated simulation for teaching and assessment of multiple skills in knee arthrocentesis. Lynfa Stroud, Diana Tabak, Ken Locke, Lori Albert, Rodrigo Cavalcanti
- The 5 Big Questions in Medical Education. Rodrigo B. Cavalcanti, Linda Snell

Presented at the Royal College Simulation Summit, September 2010 Toronto, ON

- An integrated simulation scenario in knee arthrocentesis. Lynfa Stroud, Diana Tabak, Ken Locke, Lori Albert, Rodrigo Cavalcanti

Accepted for presentation at the Medicine 2.0'10 conference in Maastricht, the Netherlands

- From Observation to Immersion: An Epistemological Shift in Medical Pedagogy. Lisa Richardson

Presented at the Ontario Simulation Exposition, December 2010, Toronto, ON

- Integrated simulation for teaching and assessment of multiple skills in knee arthrocentesis. L. Stroud, D. Tabak, K. Locke, L. Albert, R. Cavalcanti

- Cognitive bias from clinical context and resident diagnostic accuracy on a high-fidelity cardiopulmonary simulator. Presenter(s): M. Sibbald, L. Stroud, R. Cavalcanti.
<http://www.openmedicine.ca/article/view/439/353>. (Trainee Presentation).

Presented at the International Association for Medical Education AMEE Aug 27-31, 2011 Vienna, Austria

- “Oops!”: Using hybrid simulation to assess communication and procedural skills in central venous catheter insertion. Rodrigo B. Cavalcanti, Lynfa Stroud

- Incorporation of a high-fidelity cardiac simulator into an undergraduate medical education curriculum: A targeted needs assessment. Chessex C, Dounaevskaia V, Slomovic A, Tomlinson GA, Chow CM, Lee Y, Page A, James J, Fidler L, Panisko D

Presented at the Royal College of Physicians and Surgeons of Canada International Conference on Residency Education Sept 19-23, 2011 Quebec

- “Oops!”: Using hybrid simulation to assess communication and procedural skills in central venous catheter insertion. Rodrigo B. Cavalcanti, Lynfa Stroud

- Frontiers in Assessment - Clinician Educators Dinner: Rodrigo Cavalcanti and Linda Snell

Presented at the Canadian Conference on Medical Education May 7-11, 2011 Toronto, ON

Workshop: Direct observation using Tablet computers. Rodrigo B. Cavalcanti, Lynfa Stroud, Matthew Sibbald

Accepted for presentation at the Ontario Simulation Exposition, December 2011 Toronto, ON

- “Oops!”: Using hybrid simulation to assess communication and procedural skills in central venous catheter insertion. Rodrigo B. Cavalcanti, Lynfa Stroud

- Incorporation of a high-fidelity cardiac simulator into an undergraduate medical education curriculum: A targeted needs assessment. Chessex C, Dounaevskaia V, Slomovic A, Tomlinson GA, Chow CM, Lee Y, Page A, James J, Fidler L, Panisko

PUBLICATIONS 2011

Lisa Richardson. Transducing Harvey®, the cardiopulmonary simulator: learning cardiac auscultation in a digital era. Masters Thesis in Science and Technology Studies. York University. 2011

Sibbald M, de Bruin AB. Feasibility of self-reflection as a tool to balance clinical reasoning strategies. *Adv Health Sci Educ Theory Pract.* 2011 Aug 28. [Epub ahead of print] PubMed PMID: 21874594.

Cavalcanti RB, Detsky AS. The Education and Training of Future Physicians: Why Coaches Can't Be Judges. *JAMA.* 2011 Sep 7; 306(9):993-4. PubMed PMID: 21900141.

Frost DW, Quan S, Villalobos D, Morra D, Cavalcanti RB. Design and Implementation of a Low-Cost Multimodal Procedure Cart for an Internal Medicine Ward. *Hosp Pract (Minneap).* 2011 Aug; 39(3):122-7. PubMed PMID: 21881399.

Sibbald M, Cavalcanti RB. The biasing effect of clinical history on physical examination diagnostic accuracy. *Med Educ.* 2011 Aug; 45(8):827-34. PubMed PMID: 21752079.

Frost DW, Cavalcanti RB, Toubassi D. Instruction Using a High-Fidelity Cardiopulmonary Simulator Improves Examination Skills and Resource Allocation in Family Medicine Trainees. *Simul Healthc.* 2011 Jun 2. [Epub ahead of print] PubMed PMID: 21642903.

Bogoch II, Frost DW, Bridge S, Lee TC, Gold W, Panisko DM, Cavalcanti RB. A web-based tool to enhance case-based learning: Implementation and evaluation of a morning report blog. *Teaching and Learning in Medicine* (under review)

Sibbald M, Panisko DM, Cavalcanti RB. Role of clinical context in residents' physical exam diagnostic accuracy. *Med Educ.* 2011 Apr; 45(4):415-21

Frost DW, Cook DJ, Heyland DK, Fowler RA. Patient and healthcare professional factors influencing end-of-life decision-making during critical illness: A systematic review. *Crit Care Med.* 2011 May; 39(5):1174-1189

Shiphra Ginsburg, Wayne Gold, **Rodrigo Cavalcanti**, Bochra Kurabi, Heather MacDonald-Blumer. Competencies "Plus": The Nature of Written Comments on Internal Medicine Residents' Evaluation Forms. *Academic Medicine.* 2011 Oct; 86(10):S30-S34

Stroud L, McIlroy J, Tomlinson G, **Cavalcanti RB**. Who you know or what you know? Effect of examiner familiarity with residents on OSCE scores. *Academic Medicine*. 2011 Oct; 86(10):S8-S11

Yuna Lee, Ophyr Mourad, **Daniel Panisko**, Robert Sargeant, Gerald Lebovic, and **Rodrigo Cavalcanti**. Evaluation of Standardized Doctor's Order Sets as an Educational Tool for Undergraduate Medical Students. *Medical Teacher* (under review)

Bogoch II, **Cavalcanti RB**, Weinberg AN, Davis BT. Blogs as an aid to Supplement Evidence-Based Physical Exam Teaching. *Med Educ*. (under review)

AWARDS AND RECOGNITION 2010 - 2011

Dr. Herbert Ho Ping Kong:

- 2010 UWI Vice Chancellor's Achievement Award for Outstanding contribution to medical education in the Caribbean
- 2011 CBC Radio Interview on *the Current* Treatment of Orphan Diseases

Dr. Matthew Sibbald:

- 2010 McDiarmid Scholarship
Division of Cardiology, University of Toronto
- 2010 Ursula E. Bangs Award for Best Research by a Cardiology Trainee -
University of Toronto Division of Cardiology
- 2011 Masters in Health Professions Education, University of Maastricht

Dr. Lisa Richardson:

- 2010 Award for Individual Teaching Excellence – Undergraduate
Wightman-Berris Academy, University of Toronto
- 2010 Rathlyn Scholarship, The Centre for Excellence in Education and Practice
- 2010 Excellence in Teaching Award – Undergraduate
UHN/MSH Department of Medicine
- 2011 Excellence in Teaching Award for New Faculty– Postgraduate
UHN/MSH Department of Medicine
- 2011 Masters in Science and Education Studies, York University

Dr. David Frost:

- 2010 Chief Medical Resident Leadership Award
UHN/MSH Department of Medicine
- 2010 PAIRO Resident Teaching Award – Nominated
- 2011 Excellence in Teaching Award for New Faculty - Postgraduate
UHN/MSH Department of Medicine

Dr. Rodrigo B. Cavalcanti:

- 2010 The William Goldie Prize and Travel Award
Department of Medicine, University of Toronto
- 2011 Scott-Vellend Award for Sustained Excellence in Teaching
Postgraduate UHN/MSH Department of Medicine

Dr. Caroline Chessex:

- 2010 Dr. E. Mary Hollington Award, for Excellence in Clinical
Teaching University of Toronto Faculty of Medicine
- 2010 Teacher of the Year Award
UHN/MSH Department of Medicine
- 2010 Wightman-Berris Individual Teaching Award
University of Toronto
- 2011 Dr. E. Mary Hollington Award, for Excellence in Clinical Teaching
University of Toronto Faculty of Medicine
- 2011 Wightman-Berris Academy Teaching Award- Nominated
University of Toronto

Dr. Daniel M. Panisko:

- 2011 Canadian Society of Internal Medicine Osler Award