Integrating research and education into clinical practice:
The Multi-Organ Transplant Student Research Training Program (MOTSRTP)
Outline

• History and progress to date
• Overview of the admission process
• Curriculum breakdown
• Recognitions and accomplishments
• Benefits
• Limitations of the program
• Questions and answers
Problem

"STEVE, I ADMIRE YOUR DETERMINATION TO MAKE THIS PLAN WORK."
Cited Problems

• Lack of an effective integrated information system to support clinical research and evidence-based decision-making to advance the science of kidney transplantation and improve patient care.

• Unavailability of a central biological specimen repository (BSR) system for the facilitation of clinical trials and investigator-driven research within the kidney transplant program.
Cited Problem

• Lack of appropriate mechanisms to foster the development and implementation of knowledge transfer and exchange tools for the purposes of effectively engaging health practitioners, patients and the community on current research findings/innovations in clinical practice.

• No centralized strategic investment in clinical research and knowledge transfer/exchange projects made thus far
History – Journey made thus far

• Started as the Kidney Transplant Student Research Training Program (KTSRTP) in 2009, recently included trainees from the cardiac transplant team (MOTSRTTP)

• Number of mentors/faculty in the program has grown from 6 to 17; number of program trainees rose to 32 during the 2011-2012 academic year

• Expanded sources to recruit trainees to include practicum placement students from the Masters of Public Health Program, Dalla Lana School of Public Health

• Trainees play a major role in the maintenance of databases, management of clinical studies, and the development patient engagement-related initiatives
Current model - MOTSRTP

- Tri-focal training model was adopted:
  - Strong science knowledge base
  - Observational exposure to clinical settings
  - Direct involvement of students in research and health service projects that are relevant to clinical practice
Overview of Admission Methods into the MOTSRTP
MOTSRTP – Application and Selection Process

Participating institutions

- University of Toronto
- York University
- Ryerson University
- Humber College
MOTSRTP – Admission Trends

Fall/Winter 2011-2012

- 6 Research opportunities program
- 2 Service learning program (UTSG, UTSC)
- 2 Independent study program
- 13 Work-Study program
- 5 UHN volunteer services
- 1 Humber College graduate intern
- 1 Dalla Lana School of Public Health practicum
- 2 Part-time paid
MOTS RTP Curriculum: Theoretical Background

- Weekly seminars, workshops and journal clubs with mentors/faculty
- A set minimum # of required hours dedicated to continuing education
# MOTSRTP Curriculum: Theoretical Background

## FALL SESSION

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Sept 12</td>
<td>OTTR training (for new trainees only) – Kenneth Qiu</td>
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<tr>
<td>Sept 17</td>
<td>Introduction – MOTSRTP (General overview of the CoReTRIS database and other related transplant program projects and expected deliverables) – 8:30am - 12:00noon – Segun Famure &amp; Carolina Alba</td>
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<tr>
<td>Sept 19</td>
<td>Overview of kidney function and disease – Dr. Joseph Kim</td>
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<tr>
<td>Week of</td>
<td>First clinical trials training workshop</td>
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<tr>
<td>Sept 23</td>
<td><strong>Workshop for junior trainees</strong> – Critical review of journal articles – The Dos and Don’ts (4-5pm) – Kevin Quach and Alice Tse</td>
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<td></td>
<td>Workshop for senior trainees and final year students – Graduating, what’s next? – A review of educational/professional opportunities after undergraduate/graduate studies (5-6pm) – Segun Famure</td>
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<tr>
<td>Sept 26</td>
<td>Medical management of end-stage renal disease patients – Treatment options (Dialysis vs. Transplantation) – Dr. Ruth Sapir-Pichhadrze</td>
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<tr>
<td>Oct 3</td>
<td>Cardio Physiology – Heart function and disease – Dr. Phyllis Biala</td>
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<tr>
<td>Oct 10</td>
<td>Thanksgiving Day (no seminars this week)</td>
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<tr>
<td>Oct 17</td>
<td>Medical management of heart failure patients – Dr. Michael McDonald</td>
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<tr>
<td>Oct 24</td>
<td>Second clinical trials training workshop</td>
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<tr>
<td>Oct 28</td>
<td><strong>Journal club</strong> – case study/case series article (descriptive study) 4-5pm – Cardiac team/fellow/graduate student</td>
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<tr>
<td>Oct 31</td>
<td>Immunosuppression in transplant patient care management – Jennifer Harrison</td>
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<td>Nov 7</td>
<td>Surgical management of transplant patients – Dr. Anand Ghanekar</td>
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<tr>
<td>Nov 14</td>
<td>Clinical epiology: An overview – Dr. Joseph Kim</td>
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<tr>
<td>Nov 15</td>
<td><strong>Joint seminar series</strong> – MOT Clinical Research Fellows/MOTSRTP Transplant bone disease: Definitions, Diagnosis and Management 4-6pm – Dr. Heather McDonald-Blumber</td>
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<tr>
<td>Nov 21</td>
<td>Cohort studies: RCT and Case-control studies – Dr. Joseph Kim</td>
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<tr>
<td>Week of</td>
<td>Third clinical trials training workshop</td>
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<tr>
<td>Nov 25</td>
<td><strong>Journal club</strong> – RCT article – 4-5pm – Kidney Team/Fellow/GradStudent</td>
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## CLINICAL EPI

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Nov 28</td>
<td>Opportunistic infections in transplant patients – Dr. Shahid Husain</td>
</tr>
<tr>
<td>Dec 5</td>
<td>Bias and confounders in research studies/Sensitivity and Specificity in Clinical Epidemiology – Dr. Joseph Kim</td>
</tr>
<tr>
<td>Dec 6-20</td>
<td>Mid-year student evaluations</td>
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<tr>
<td>Dec 21</td>
<td>End-of-year dinner party (venue TBA)</td>
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## WINTER SESSION

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<thead>
<tr>
<th>Date</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Jan 9</td>
<td>Quality of life in pre &amp; post-transplant patients – Dr. Heather Ross</td>
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<tr>
<td>Jan 16</td>
<td>Psycho-social assessment of transplant patients: an overview – Margot Mitchell</td>
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<tr>
<td>Jan 23</td>
<td>Transplantation ethics: Directed-Anonymous Organ Donation – What's wrong with that? – Linda Wright and Michael Campbell</td>
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<tr>
<td>Jan 30</td>
<td>Clinical trials research in MOT: an overview – Segun Famure</td>
</tr>
<tr>
<td>Feb 6</td>
<td>Analyzing research data: Developing a data collection and analyses plan (DCAP) – Dr. Joseph Kim</td>
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<tr>
<td>Feb 7</td>
<td><strong>Joint seminar series</strong> – MOT Clinical Research Fellows/MOTSRTP Biostatistics in clinical research – Dr. Michael McDonald and Dr. Joseph Kim (Date and Time TBA)</td>
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<tr>
<td>Feb 13</td>
<td>There to here: The process of transition from pediatric to adult transplant care – Corrine McCurdy</td>
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<tr>
<td>Feb 20</td>
<td>Family Day – No seminar</td>
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<tr>
<td>Feb 24</td>
<td><strong>Journal club</strong> – Systematic review/meta-analyses article – 4-5pm – Cardiac Team/fellow/graduate student</td>
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<tr>
<td>Feb 27</td>
<td><strong>UHN Research ethics board</strong> – Research ethics and you! How to make an excellent REB application – Lon Baladajy and Larissa Potanina</td>
</tr>
<tr>
<td>Mar 1</td>
<td>Training Program for Regenerative Medicine (TPRM) Joint Session – Scientific writing workshop – 9am-12pm A minimal fee of $15-$20 may be required of each registered student in this workshop</td>
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<tr>
<td>Mar 2</td>
<td>Career Development Seminar Series – Physiotherapy as a profession – Opportunities, Rewards and Challenges – 4-7pm Key guest speaker – Dr. Dina Brooks – Toronto Rehabilitation Centre. Associated speakers – Gary Beauchamp and Bansi Shah – MOT Program</td>
</tr>
<tr>
<td>Mar 5</td>
<td>Student presentations – 7:30am-8:30am</td>
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<tr>
<td>Mar 12</td>
<td>Student presentations – 7:30am-8:30am</td>
</tr>
<tr>
<td>Mar 12-31</td>
<td>End-of-year student evaluations</td>
</tr>
<tr>
<td>Mar 19</td>
<td>End of academic session breakfast and awards ceremony – 7:30am-9:00am</td>
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Curriculum – Clinical Exposure

• Out-patient clinic/in-patient hospital ward observations
• OR observations
• Allied health clinical observations
Curriculum – Research/Programmatic Projects

- Required minimum number of hours for research project related work
- Student and program evaluations are conducted periodically to enhance quality
Curriculum - Clinical trials training

• Clinical research practice training (GCP/ICH)

• Clinical research safety training

• Dangerous goods training
Curriculum- Trainee evaluations

• Academic deliverables

• Self-reflections (Weekly journal)

• Leaders’ report

• Peer and program evaluations
MOTSRTP – Funding

Funding of the MOTSRTP

- Government Sources
- Hospital Based
- Pharmaceutical Industries
- University of Toronto

Fiscal Year:
- 2009-2010
- 2010-2011
- 2011-2012

Funding ($):
- 0
- 10,000
- 20,000
- 30,000
- 40,000
- 50,000
- 60,000
- 70,000
- 80,000
MOTSRTP – Recognitions

Poster Presentations:

• American College of Health Executives Congress for Health Leaders, March 2012

• TTS XXIV International Congress, July 2012

Oral Presentations:

• Canadian College of Healthcare Leaders Annual conference, June 2012
Integrating research and education into clinical practice: the Multi-Organ Transplant Student Research Training Program Model

Olusegun Famure, dipHSM, MPH, MEd, CHE, Anna Li, Heather Ross, MD, MHSc, FRCPC, and
S. Joseph Kim, MD, PhD, MHS, FRCPC

Abstract—Given the increased student interest in health research and the need to implement health research initiatives, the Multi-Organ Transplant Student Research Training Program provides student trainees the opportunity to contribute to health research initiatives in transplant care. Program quality initiatives achieved include the development of a clinical research database, knowledge exchange, performance measurement tools, and health research projects. The program promotes collaboration between academic and healthcare institutions to integrate research and education into clinical practice.

The need to implement health research initiatives to improve patient outcomes and foster patient engagement is on the rise.1,2 Despite these necessities, the growth in federal funding for conducting health research has declined in the past decade because of budget cuts. This has led to the challenge of obtaining adequate human and financial resources to conduct health research in a productive and efficient manner.3

Interestingly, there exists a large pool of students in tertiary academic institutions with an interest in health research.1,4 Most healthcare-related professional education programs often require prospective applicants to possess some prior exposure to clinical and research practices as a foundation in clinical and health research through mentoring and inquiry.4–7 Studies have shown that this form of learning not only enhances the educational experience of trainees and increases the research productivity of clinicians and researchers but also facilitates the development of collaborative relationships between trainees and their mentors.7–11 Furthermore, such models use an inter-professional educational curriculum encompassing different biomedical research modules to allow trainees to gain exposure to various healthcare disciplines and clinical research areas.2–7 On the basis of past training models, the Multi-Organ Transplant Student Research Training Program (MOTSRTP) was developed to engage student train-
MOTSRTP – Accomplishments

Student Abstracts

• Integrating research and education into clinical practice – The Multi-Organ Transplant Student Research Training Program (MOTSRTP)

• Communication risks to potential living kidney donors: A systematic review

• Is delayed graft function still a risk factor for acute rejection in the current era of deceased donor kidney transplantation?

• Increased time-dependant variability in tacrolimus levels is associated with inferior outcomes following kidney transplantation.

• A comparison of equations to estimate glomerular filtration rate in living kidney donor candidates.
MOTSRTTP – Outreach

- Promotes the opportunities provided to students within the program
- Creates awareness to students about the MOTSRTP by directly identifying key success stories
- Helps to introduce potential mentors to the program and avenues for collaborations
MOTSRTP - Benefits

What are the overall benefits of the MOTSRTP to the MOTP?
Comprehensive Renal Transplant Research Information System
CoReTRIS user-manuals
E-Learning Tools

- Background
- Data Abstraction
- OTTR
- Patient Charts
- Auditing
- Data Entry
- Frequently Asked Questions

ReTRIS
e-learning tool
CoReTRIS Operating Costs

Estimated costs to run CoReTRIS annually

*Costs are based on each FTE earning $40 000 per year
Standard Operating Procedures
Harmonizing patient health information retrieval from external admissions

Current Model

Data Sources:
- Ez Call Messages from Pt/Pt’s Family about hospitalization.
- Phone calls from ER MDs from Outside Hospitals
- Ottr
- Pts give info at Clinic and Clinical Trials

Current Model: Incomplete data as a result of too many sources providing different sets of info.

Ideal Model: Clinic Visits to Patient Charts

1. Before Clinic: Tx Hospitalization collection forms + D/C summary request forms filed in Patient charts.

2. During Clinic: Ask Pt: “Have you been hospitalized since last clinic visit”. Fill out appropriate forms.

3. After Clinic: Fax d/c summary requests. Obtain d/c summaries & file into Patient Charts.

Ideal Model: Efficient, ensures data is complete.
Patient Education Tools

Donating a Kidney

Information for potential living kidney donors
Kidney Pulse

Welcome to the First Issue of Kidney Pulse, the TGH Kidney Transplant Program Newsletter!

It is my pleasure to welcome you to the inaugural edition of the Kidney Pulse Newsletter. We hope that this will be your ongoing source for information about the various happenings in our program. The current issue focuses on the living kidney donation program at Toronto General Hospital. Subsequent issues of Kidney Pulse will focus on other themes of interest in kidney transplantation.

Kidney donation from a family member or loved one is a special gift that provides an increase in life expectancy and quality of life for the recipient. The procedure has continued to evolve over the years and is now associated with a shorter length of stay in hospital and more rapid return to full function for the donor.

Over the past five years, this program has seen a 50% increase in living donor rates, resulting in a cumulative total of 640 in the past decade. Our program has rich experience with the procedure and our overall outcomes have been excellent.

This issue of Kidney Pulse highlights the many members of our kidney transplant team who provide exemplary care and have dedicated their lives to helping patients with kidney disease. It also describes some of the major innovations in living donor kidney transplantation that the Toronto General Hospital has been involved in over the last few years, namely the Living Donor Paired Exchange Program and the Incompatible Living Donor Transplant Program.

In This Issue...

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Our Partners in the Transplant Community
The Family Physician in Collaborative Care
Focus On...
The Living Donor Kidney Program
Frequent Asked Questions
Recent Publications
Personal Perspectives
Spotlight on...
Dr. Michael Robb
Dr. Yaser Alkhazan
Calendar of Events

Kidney Transplant Program
Furthermore, this issue provides a summary of some recent research that may be of interest to both recipients and donors alike.

I would like to extend my thanks to all the contributors to our inaugural issue of Kidney Pulse as well as to the students who helped create the newsletter from the ground up. A special thanks to my colleagues and friends, Megan Fabian, whose vision, determination, and diligence helped bring this project to fruition.

S. Joseph Kim
MD, PhD, MHS, FRCPA

Number of Living Donor (LD) Kidney Transplants vs. Year

Source: Organ Transplant Tracking Record 2011

Kidney Pulse - Fall 2011

Adherence - Taking Responsibility For Your Own Health

Adherence is a critical component of the successful outcome of a transplant. The ability to maintain the health of your kidneys depends on your willingness to follow the advice of your transplant team. Taking responsibility for your own health means being aware of your health and the condition of your kidneys.

Your transplant plan includes taking your medications correctly, getting blood tests done on time and attending scheduled clinic visits. All of these are essential to keep your transplanted kidney working well and ensuring your health for a long time. It is very important to take the right medications on time and all the right doses. Missing even one or two doses of anti-rejection medication significantly increases your risk of rejection. It is equally important to adhere to the dietary and lifestyle recommendations given to you by your transplant team.

I would like to introduce you to one of the members of our kidney transplant team, Dr. Jeffrey Schild.

Dr. Jeffrey Schild

Kidney Pulse - Spring 2012

In This Issue...

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Our Program in Crossing Boundaries
The Transplant Pharmacists Team
Our Partners in the Transplant Community
SickKids’ Good 2 Go Transplant Program
Focus On...
The Post-Transplant Coordinator
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Spotlight on...
Theresa McNulty
Dr. Ruth Sagie-Polack
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Kidney Pulse - Spring 2012
Limitations of the program

- Time consuming:
  (trainee selection, learning curve, administrative and logistical issues)
- Balancing student training with expected project outcomes
- Restricted educational training scope and depth due to fixed academic year sessions
MOTSRT Team – First class
MOTSRT Team – 2011-2012
Special thanks

- Theresa Byrne/Anna-Gail Molera – Admin assistants
- Nicholas Phan – Research analyst
- MOT and non-MOT guest speakers
- Transplant surgeons – Dr. Robinette and Dr Ghanekar
- Divisions of Nephrology and Cardiology
- MOT Allied health – pharmacy, social work, PT and OT teams
- UHN Administration
- Drs, Carolina Alba, Heather Ross and Joseph Kim
Questions and Comments