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DIVISION REPORT

Cardiology



Dr. P.J. Devereaux
MD, PhD, FRCPC
Division Director

EDUCATIONAL ACTIVITIES

After many successful years as the Cardiology Residency program director, Dr. Nick Valettas stepped down from this position. Dr. Matt Sibbald has now taken on the role of Cardiology Residency program director. Dr. Sibbald is recognized locally, nationally, and internationally as a leader in medical education and research. We are fortunate to have Dr. Sibbald taken on this role as we prepare for Competence by Design.

Our fellowships in echocardiography, electrophysiology, interventional cardiology, and perioperative medicine continue to flourish under the leadership of Drs. Omid Salehian, Syam Divakaramenon, Shamir Mehta, and Vikas Tandon, respectively. We continue to attract outstanding residents and fellows from within and outside of Canada.

Dr. Michael Tsang successfully obtained his Masters in Health Sciences Education. Dr. Nundini Gupta won the Clerkship Medical Subspecialty Selective Resident Teaching Award 2017. Dr. Syam Menon won the 2017 Ernest Fallen Award for Teaching Excellence in Cardiology.

2.4 M

Grant from the CIHR to conduct the CoLchicinE in patients with Acute myocaRdial infarction (CLEAR) Trial by Dr. Sanjit Jolly.



— Dr. P.J. Devereaux

RESEARCH PROGRAM

We continue to have many successes in our research programs. Regarding publications, we continue to be one of the top research groups with the highest impact in the world. Drs. Salim Yusuf, Stuart Connolly, Eva Lonn, Sonia Anand, and Darryl Leong published the landmark COMPASS Trial in the *New England Journal of Medicine*. Dr. Jeff Healey published the results of a 15,000-patient global atrial fibrillation registry in *The Lancet*. Drs. P.J. Devereaux, Vikas Tandon, and many other colleagues published the first Canadian Cardiovascular Society Guidelines on perioperative cardiac risk assessment and management for patients who undergo noncardiac surgery in the *Canadian Journal of Cardiology*.

Dr. Sanjit Jolly received a \$2.4 Million grant from the Canadian Institutes of Health Research (CIHR) to conduct the CoLchicinE in patients with Acute myocaRdial infarction (CLEAR) Trial. Sanjit was also able to obtain substantial industry support for this trial. Dr. Jeff Healey was awarded a \$3.2 Million grant from CIHR for the ARTESIA Study.

Dr. Harriette Van Spall won a Hamilton Health Sciences Early Career Research Award. Dr. David Conen was awarded a Hamilton Health Sciences Research Strategic Initiatives Grant.

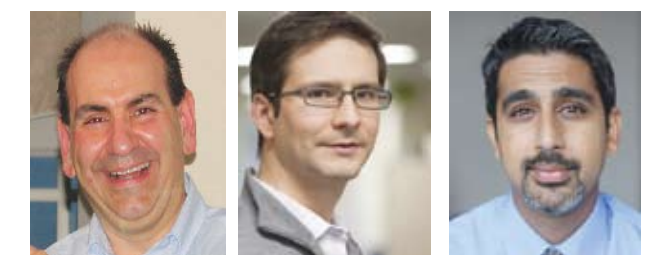
MAJOR ACHIEVEMENTS

We were able to create a chair in cardiovascular research through divisional AFP funding and financial support from the Department of Medicine, PHRI, and several divisional members. Based on an open competition, Dr. Jeff Healey was selected as the recipient of this chair in Cardiology Research. Dr. P.J. Devereaux received a Tier 1 Canada Research Chair in Perioperative Medicine. Dr. Darryl Leong was awarded a Heart and Stroke Foundation Clinician Scientist Career Award.

Drs. Stuart Connolly, P.J. Devereaux, and Salim Yusuf were listed in the Clarivate Analytics 2016 Highly Cited Researchers list, based on highly cited papers in science journals indexed in the Web of Science Core Collection during the 11-year period of 2004 to 2014.

FUTURE DIRECTIONS

Dr. Tej Sheth is leading our division in a re-design of the Cardiology Ambulatory Clinics. ■



Notable contributors from left to right: Drs. Nick Valettas, Matt Sibbald, Sanjit Jolly, Jeff Healey, Tej Sheth.



Clinical immunology & allergy

EDUCATIONAL ACTIVITIES

Dr. Jaclyn Quirt is the training program director of the McMaster Clinical Immunology and Allergy training program, a highly integrated, accredited Adult/Pediatric program and Dr. David Fahmy is the new education coordinator.

There are six residents, from both Pediatrics and Internal Medicine currently in full-time training. Our division is very active in teaching medical and pediatric residents, and clinical clerks from McMaster as well as from other centres. Graduating trainees have proceeded to academic and clinical careers in Clinical Immunology and Allergy in Canada and internationally. In addition, a substantial number of postdoctoral PhD and MD research fellows, as well as visiting scientists, regularly join our division.

Undergraduate teaching is well supported by our divisional faculty. Our weekly Allergy and Immunology Rounds, with internationally renowned invited speakers on occasion, are a major success. Other seminars, journal clubs and teaching sessions are a regular feature including the weekly academic half-days.

Dr. Judah Denburg
MD, FRCPC
Division Director

“Development of a therapeutic vaccine for rheumatoid arthritis continues with CIHR and industry funding, directed by Dr. Mark Larché.”

— Dr. Judah Denburg

RESEARCH PROGRAMS

Principal research themes are inflammation and immunity as they relate to the respiratory tract (allergic rhinitis, nasal polyposis, asthma and peptide immunotherapy), food allergy (peanut desensitization, peanut allergy threshold studies, clinical food allergy challenges, pathophysiology of anaphylaxis), autoimmune diseases, hereditary angioedema, and hemopoietic stem cells in the development and maintenance of allergy. Peer-reviewed and private sector funding, including trials of new biologics and peptide vaccines in pre-clinical and clinical models, continues to grow. Thus, there exist many research opportunities for students, postdoctoral fellows and others pursuing continuing medical education for an investigative career. The presence of AllerGen NCE at McMaster has allowed for major expansion of ongoing research collaborations, especially in food allergy, asthma and the development of atopy.

The Division hosts an NIH-funded T cell Epitope Research and Validation Centre, focusing on understanding the modulation of allergen-specific T cell function and trafficking, following interventions such as bronchial allergen challenge and peptide immunotherapy. Mechanistic studies of peptide immunotherapy are funded by CIHR. Development of a therapeutic vaccine for rheumatoid arthritis continues with CIHR and industry funding, directed by Dr. Mark Larché.



Notable contributors from left to right: Drs. Jaclyn Quirt, David Fahmy, Mark Larché, Susan Waserman, Harold Kim, Maggie Larché, Rae Brager.



MAJOR ACHIEVEMENTS

Dr. Susan Waserman is president of the Canadian Allergy, Asthma and Immunology Foundation and Dr. Harold Kim holds the position of vice president, Canadian Society of Allergy and Clinical Immunology. Dr. Mark Larché holds the Canada Research Chair in Allergy & Immune Tolerance and the McMaster University/GlaxoSmithKline Chair in Lung Immunology at St. Joseph's Healthcare Hamilton. Dr. Denburg continues as CEO/scientific director of AllerGen NCE, which is in its second funding cycle (to 2019); see the separate report on AllerGen. Dr. Maggie Larché sits on the Annual Scientific Meeting Program Committee as chair for abstract review for the Canadian Rheumatology Association. We would like to welcome our newest division member from the Department of Pediatrics, Dr. Rae Brager, and congratulate professor emeritus, Dr. Peter Dent who was named to the Order of Canada in June.

FUTURE DIRECTIONS

With all of the above activity, maintenance of a critical mass of academically committed members of our division is a high priority. The growing outpatient load and the hospital restructuring make it necessary to provide greater service to a larger volume of both adult and pediatric patients over a larger area. Moreover, the international stature of research emanating from our division at McMaster, with new opportunities of linkage to respiratory health, rheumatology and inflammation provide continued opportunities for academic growth of our division. ■

DIVISION REPORT

Clinical pharmacology and toxicology

EDUCATIONAL ACTIVITIES

Although our Division is the smallest, it leads the Department in academic contributions overall and for education. This includes year-round supervision of medical students and residents on internal medicine, critical care and emergency department clinical services at St. Joseph's Healthcare Hamilton and Hamilton Health Sciences, as well as elective rotations through our specialty service. Faculty members are active supervisors in the undergraduate medicine program as well as postgraduate education at the Masters and PhD level in Health Research Methodology, Medical Sciences, e-Health, Global Health, and Pharmaceutical Sciences at both McMaster University and the University of Toronto. The division draws Doctor of Pharmacy students from across the country, as well as undergraduate pharmacology, health sciences, and health technology assessment students. We play a leading role in several national and provincial training programs in drug safety and effectiveness and in drug policy.

Dr. Anne Holbrook
MD, PharmD, MSc, FRCPC
Division Director

Clinical Pharmacology and Toxicology (CPT) participates in a University of Toronto-coordinated Clinical Pharmacology and Toxicology residency training program accredited by the Royal College of Physicians and Surgeons of Canada. We are actively recruiting trainees and graduates. We continue to

lobby for joint specialty-clinical pharmacology training.

RESEARCH PROGRAMS

Despite its small numbers, the division continues to be highly successful in attracting research funding, largely because of a very wide collaborative network within medicine, pharmacy, nursing, epidemiology, economics and the social sciences. Grants come from a variety of peer-review sources. Our research topics focus on the benefits, harms, economics and potential vs actual use of therapies, and include projects examining methods of improving prescribing, the impact of electronic medical records and computer-based decision support, the impact of changes in drug policies on health and health care utilization, patient preferences regarding

therapies, the development, dissemination and implementation of evidence-based guidelines for therapies, medication management interventions, drug interactions, comparative effectiveness and safety of competing medications, and the international benchmarking of prescribing skills. As well as scholarly papers and presentations, members of the division hold multiple copyrights and patents on research products, software, reports and guidances.

MAJOR ACHIEVEMENTS

The recent department initiative to quantify and rank academic activities of all faculty has shown that clinical pharmacologists are amongst the top percentile group. One of the unique features of our division is its ability to directly impact professional practice and patient care through drug policy decision-making. Our leadership in evidence-based therapeutics and inter-professional practice leads to multiple major advisory roles with the federal and provincial governments influencing budgets in excess of \$10 billion annually, as well as leadership positions in provincial and national professional societies.

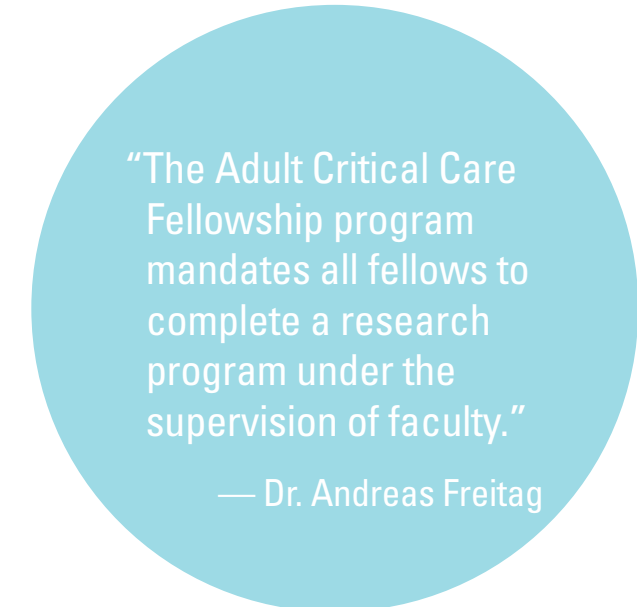
FUTURE DIRECTIONS

Since therapies are a prevalent and increasingly costly sector of health care, clinical pharmacologists with training in medicine plus epidemiology or quality assurance are in high demand but critically short supply. Thus, a major immediate goal of the division is the recruitment of new members to allow us to address the significant needs for therapeutics and toxicology consultation, for education to improve prescribing practices and medication safety, and to expand our involvement in health policy and research. ■

“...a major immediate goal of the division is the recruitment of new members”
— Dr. Anne Holbrook

“Our leadership in evidence-based therapeutics and inter-professional practice leads to multiple major advisory roles with the federal and provincial governments...”
— Dr. Ann Holbrook

Critical care



“The Adult Critical Care Fellowship program mandates all fellows to complete a research program under the supervision of faculty.”

— Dr. Andreas Freitag

EDUCATIONAL ACTIVITIES

The Critical Care Program continues to offer a Royal College accredited two-year Fellowship Program (program director: Dr. Tim Karachi). We currently have 14 national/international fellows in the program. The Critical Care Program offers formal rotations for residents from a variety of other specialties.

There are formal block electives/selective rotations in critical care being offered to medical and elective students, as well as external residents (organizer: Dr. Heather Whittingham). We continue to provide a multidisciplinary Regional Critical Care Journal Club, as well as Regional Critical Care Rounds. We have a national advanced Critical Care Simulator Course (organizer: Dr. Alison Fox-Robichaud) using a state-of-the-art facility. We have organized a formal bedside ultrasound/echocardiography course of faculty/residents and fellows for the last two years (organizer: Dr. Craig Ainsworth). Faculty provide formal educational sessions on a daily basis, as well as once weekly academic half days for Critical Care residents/fellows.

RESEARCH

The Adult Critical Care Fellowship Program mandates all fellows to complete a research program under the supervision of faculty. There is an Annual Fellows Research Day in conjunction with the Fellowship

program at the University of Western Ontario. Many of the abstracts/projects are also presented at a variety of international conferences with subsequent peer-reviewed publications. Drs. Deborah Cook/Maureen Meade co-chair a research mentorship program dedicated to formal training in research methodology and stewardship. Members of the division are active participants in the Canadian Critical Care Trials Group dedicated to designing, implementing and publishing multi-centre, multi-national trials in Critical Care Medicine. Several members of the division are either principal or co-investigators in a variety of trials including studies involving modes of mechanical ventilation/weaning, management/mechanisms in septic shock, prophylaxis for thromboembolism, and end of life care, just to name a few.

MAJOR ACHIEVEMENTS

Dr. Deborah Cook is the co-chair of the Evidence-Based Practice Centre at McMaster University, as well as the director of ICU Clinical Effectiveness and Outcomes Research at St. Joseph’s Healthcare, Hamilton. She is the academic chair of Critical Care Medicine at McMaster University and holds the McMaster University/St. Joseph’s Healthcare regional academic chair in Critical Care Medicine, as well as the Canadian Research Chair of Research Transfer in Intensive Care. She is an Officer of the Order of Canada and was recently named Distinguished University Professor, the University’s highest honour, going only to those professors who achieve the highest level of excellence in research, teaching and learning. The Canadian Critical Care Trials group has honoured her in creating The Deborah J. Cook Mentorship Scholarship Award. She also received the 2017 Distinguished Lecturer Award in Critical Care Sciences, Canadian Institute of Health Research (CIHR) Institute of Circulatory and Respiratory Health (ICRH) and the Canadian Critical Care Society (CCCS).

Dr. Peter Kraus is in LHIN Lead for Critical Care Medicine, which advises government and/or creates policy with regards to future

directions in Critical Care utilization, funding and standards of care. There is ongoing financial support for the Clinical Critical Care Assistants program sponsored by the Ministry of Health and Long-term Care. Dr. Draga Jichici is the co-founder and co-chair of the Canadian Neurocritical Care Society. Dr. Jill Rudkowski is the Clinical Clerkship coordinator. Drs. Mark Soth (St. Joseph’s Healthcare), Tim Karachi (Juravinski), Heather Whittingham (Hamilton General) and Andreas Freitag (McMaster) are the Medical directors and site leaders for Critical Care Medicine.

FUTURE DIRECTIONS

We continue to provide support and leadership in the delivery of Critical Care services both in Hamilton and in the LHIN. We not only practice evidence-based medicine, but create the evidence within Critical Care, which has and will change clinical practice locally, nationally and internationally. We have expanded our clinical borders by way of our Critical Care Response Teams and continue to work with our colleagues on quality of life/end of life decision making. ■



Dr. Andreas Freitag
MD, FRCPC
Division Director



Notable contributors from left to right: Drs. Deborah Cook, Tim Karachi and Alison Fox-Robichaud.

Dermatology

EDUCATIONAL ACTIVITIES

The Division of Dermatology at McMaster University promotes a high-quality patient-centered dermatology service to the population of Hamilton, Niagara, and Waterloo metropolitan areas or Southwest of Ontario regions, serving both inpatient and outpatient activity.

The Dermatology division has devoted its activities to education. It provides extensive undergraduate medical dermatology teaching and a broad range of postgraduate elective opportunities in Hamilton for medical students and postgraduate students in the Departments of Internal Medicine, Pathology, Pediatrics, Plastic Surgery, and Ophthalmology. This is an ongoing program to update and educate students, residents, fellows and clinical faculty through patient presentations/discussion which serve both an educational function through discussion of interesting or problematic cases, and to facilitate the exchange of ideas regarding patient care. Our faculty members have national and international recognition in their fields, and in providing front-line care to patients with skin problems ranging from common to unusual. Most dermatologists practice in the community while Dr. Hermenio Lima (division director) and Dr. Rosilene

Dr. Hermenio Lima
MD, PhD, FRCPC
Division Director



Lanzini (assistant professor of Dermatology) practice in the medical school clinics.

CLINICAL RECRUITMENT

We are recruiting experienced qualified dermatologists to join our busy and expanding medical dermatology clinics at McMaster. Dermatology is part of a changed health care landscape. Recruitment and retention of new faculty are one of the main objectives of the dermatology division. The division will be recruiting new GFT faculty members shortly.

CLINICAL ACTIVITIES

Dermatology Division Academic Centre provides both, secondary dermatology and tertiary health care services to Hamilton and the catchments areas. The restructure creation of a Dermatological Health Care services follows the Royal College recommendations for Dermatology Division Academic Centres. The provided academic structure allows the opportunity to recognize and treat acute and chronic common and rare skin conditions with the best of evidence-based medicine. The goal of these clinics and units are to provide Hamilton patients with the right care, at the right time, in the right place.

MAJOR ACHIEVEMENTS

Creation of more academic dermatology clinic services as part of education contributions at McMaster University. More opportunity for dermatology teaching and training for learners. Increased number of medical students and residents' rotations. The implementation of the first fellowship program in dermatology with one fellow in training.

FUTURE DIRECTION

Patient Care: Increase the number of patient services; reduce the waiting list; and improve patient care outcomes.

Academic: Improve academic training and establishment of a McMaster Dermatology Residency Program. ■



RESEARCH, INNOVATION, AND SCIENCE: PEPPER PROJECT - PATIENT EDUCATION FOR LIFE!

Development of the first human-robot interaction system to promote health information exchange in Canada. This is a joint project from McMaster University Division of Dermatology and Ryerson University. This project rationale is based on the fact that robots can be engaging. Furthermore, humans like to cooperate with robots. Therefore, if robots are persuasive, maybe a robot can help maintain a behavior change program, and they can help patients to change habits for health for life. Therefore, the Pepper robot project will deliver a premium experience to patient care using Pepper robot as an engagement tool and measure the effects of behavioral change in the area of healthcare and healthcare communication with Pepper robot interaction.

Emergency medicine

“The commitment of all members of Emergency Medicine permits the continuation of academic and clinical teaching of hundreds of medical students and residents in the CTUs...”

— Dr. Marg Ackerman

EDUCATIONAL ACTIVITIES

Over the past year postgraduate activity has focused on the development of a new academic curriculum design and implementation that commenced on July 1 and preparations for transitioning to Competency Based Medical Education (CBME).

The PGY1's have started the Competence by Design (CBM) curriculum with all other years completing their residency under the previous format. The program is well positioned to begin implementation having used the McMAP evaluation system developed by Dr. Teresa Chan. A computer software program has been developed initially using McMAP that was reconfigured for Entrustable Professional Activities (EPA) including milestones. The Division received considerable support with expertise from Dr. Reza Samavi, program coordinator for the Masters of eHealth, and two Masters students, Mr. Ali Ariaeinejad and Ms. Roxanne Patel. McMAP is now designed to accept daily evaluations, collate data, provide a quick summary of resident progress, and immediately show overall progress in meeting milestones and completing EPAs. When fully tested and operational, this will significantly reduce the labour intensive data manipulation currently required by the administrators.

Dr. Margaret Ackerman
MD, MSc, FRCPC, MEd,
Division Director



Dr. Alim Pardhan, program director (PD) and Dr. Kelly Van Diepen, assistant PD have worked with Dr. Alex Chorley, a recent graduate who completed the Clinical Educator AFC, to revamp the curriculum and expand the academic program. Enhancements include: a PGY 1 boot camp with cardinal presentation topics and related simulations; PGY 2 CQI and specific topics on charting, handover, and consultation skills; PGY4 sessions on ED flow, teaching on shift, and crisis resource management; and enhanced M&M. Drs. Kerstin de Wit and Mathew Mercuri revamped the research curriculum that was very successful.

The Division continues to offer specialized training in Pre-Hospital Care led by Dr. Michelle Welsford, and Point of Care Ultrasound (POCUS) led by Dr. Melissa Hayward.

The Undergraduate EM program, under the leadership of Dr. Massoud Jalayer, is oversubscribed by students wanting observer and block elective experiences. The program has provided a research grant for a medical student.

The annual 10:EM conference, under the leadership of Dr. Teresa Chan, was a success and will be held again in 2017.

RESEARCH ACTIVITIES

Research continues to grow with Drs. Kerstin de Wit, Teresa Chan, Andrew Worster, Jonathan Sherbino, and Mathew Mercuri. The Division has taken the opportunity to engage an expert supported by the Canadian Association of Emergency Physicians (CAEP) for a research consultation to review the research program, structure and to plan for the future.

MAJOR ACHIEVEMENTS

Members of the Division have been recognized as leaders in Emergency Medicine and the University. In 2017, Dr. Michelle Welsford was promoted to professor and Dr. Jonathan Sherbino became assistant dean of the program for Educational Research and Development.

The commitment of all members of Emergency Medicine permits the continuation of academic and clinical teaching of hundreds of medical students and residents in the CTUs, and increases the quality and quantity of educational and clinical research and provides CME to regional physicians and allied health professionals.

FUTURE DIRECTIONS

In 2017-2018 a new division director will assume the leadership of the Division. This person will have the opportunity to lead a vibrant group of excellent clinicians who are committed to research and education of medical students and residents. ■

Endocrinology and metabolism

Highly productive, creative and effective researchers and educators underlie the Division's local, and international reputation for excellence. The divisional faculty members are involved in all aspects of the undergraduate and postgraduate curriculum and their research productivity is reflected in an extensive list of publications.

EDUCATION

Medical undergraduates have opportunities to interact with divisional faculty in large group sessions, during horizontal electives, as part of the LMCC review series, during Medical Foundations and Professional Competencies tutorials and clinical skills preceptorships, and during self-initiated research projects.

Postgraduate medical residents extensively interact with divisional members on the clinical teaching unit, in academic half days, during a variety of rounds and presentations, and during rotations in in-patient and out-patient endocrine environments. Divisional faculty are also Internal Medicine examiners for the Royal College.

The Division supports a full subspecialty residency program in Endocrinology and Metabolism which has now been operating for eight years and accommodates up to two fourth-

year residents and up to two fifth-year residents at any one time. A one-year fellowship in metabolic bone disease has also been established for one fellow.

Divisional faculty are extensively involved in non-clinical education as PhD comprehensive and defense examiners, mentors and graduate thesis committee members. They also teach undergraduates, Master's level, and PhD students every year (10); and currently accommodate five postdoctoral fellows.

Outside of McMaster, divisional members are engaged in writing clinical practice guidelines, developing quality assurance initiatives with the Ontario CPSO, leading continuing medical education meetings/initiatives in diabetes, hypertension, parathyroid disease and general endocrinology, extensively speaking internationally on endocrine topics, and educating the public about diabetes, osteoporosis, endocrine hypertension and related disorders. The Division also provides departmental leadership in global health education and training, and successfully fundraises for this cause every year.

RESEARCH PROGRAMS

Collaborative research across disciplines is the key distinguishing characteristic of the Division. All members of the Division are directly or indirectly involved in designing and leading research ranging from genetics, biochemistry and physiology to epidemiology and large international clinical trials. Current research topics include prevention of cardiovascular outcomes in diabetes, diabetes remission and pathophysiology; obesity, muscle metabolism, AMP-activated protein kinase, inflammation, and fatty liver disease; the relationship between dysglycemia and serious health outcomes; pediatric to adult care transitions; imaging modalities and therapies for osteonecrosis of the jaw, osteoporosis, hypoparathyroidism and metabolic bone disease; and identification of novel biomarkers pertaining to diabetes care.

"The current focus of research in the Division is on identifying an effective and robust means of achieving type 2 diabetes remission..."

— Dr. Hertzell Gerstein

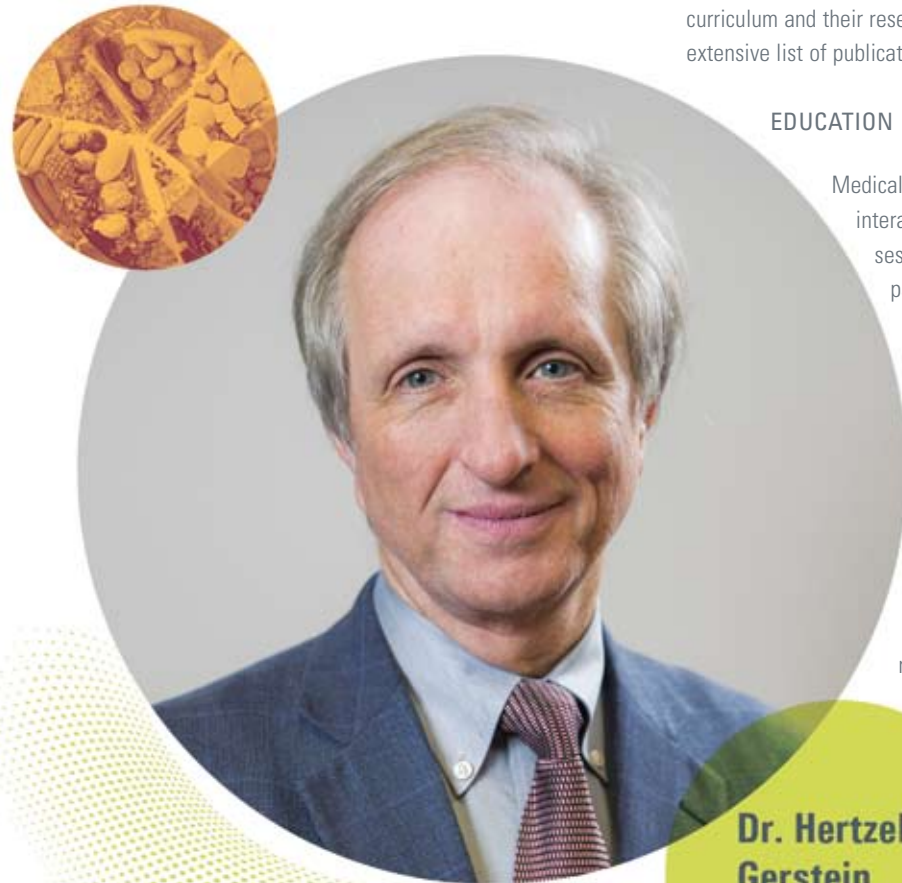
During the 2016-2017 academic year alone, these research activities have led to the awarding of six new grants from peer-reviewed and industry sources, two patents, and the publication of more than 55 peer-reviewed articles or book chapters.

MAJOR ACHIEVEMENTS/RECOGNITIONS

This past year Dr. Gregory Steinberg was awarded the very prestigious Canadian Institutes of Health Research Gold Leaf Prize and the American Diabetes Award for Outstanding Scientific Achievement; Dr. Meera Luthra was awarded the 2016 Department of Medicine Teaching Award for Dedication and Excellence in Postgraduate Medical Education; Dr. Ally Prebtani was awarded the Clive Davis Medical Consultant Award, the McMaster University Global Impact Award, and was chosen as the Diamond Jubilee medical lead for the Aga Khan health board in Canada; Dr. Natalia McInnes was awarded a certificate of merit for teaching excellence from the Department of Medicine; Dr. Aliya Khan was awarded the International Osteoporosis Foundation Award for publishing excellence and led the Canadian guidelines on primary hyperparathyroidism; Dr. Andrew Don-Wauchope assumed medical leadership of Canada's largest community laboratory; and Drs. Ally Prebtani, John D. Booth, Zubin Punthakee, William Harper, and Hertzell Gerstein, along with the staff of the HHS diabetes program, performed in a widely viewed diabetes music video produced by Dr. Gerstein as an educational tool for people with diabetes.

FUTURE DIRECTIONS

The current focus of research in the Division is on identifying an effective and robust means of achieving type 2 diabetes remission using medical approaches and to understand the pathophysiology behind diabetes remission. Members are continuing to research ways of characterizing and preventing obesity in children and adults, reducing the metabolic consequences of obesity, and identify therapies that may mitigate both obesity and diabetes. Members are also involved in understanding the treatment and prevention of atypical femoral fractures and metabolic bone disease. ■



Dr. Hertzell C. Gerstein
MD, MSc, FRCPC
Division Director

Gastroenterology

4,000

GI division members have produced over 4,000 peer-reviewed publications that have been cited over 112,000 times.

EDUCATIONAL ACTIVITIES

The popularity of the Division of Gastroenterology's national endoscopy training programs continues to grow. The 11th annual McMaster Residents' Endoscopy Training Course organized by Dr. David Armstrong, Dr. Frances Tse and Dr. Eric Greenwald is a national course teaching GI residents from Vancouver to Halifax. This continues to be very popular. We also have a regular "Train the Trainers" course and are one of only two sites in Canada to run such programs.

These are important in ensuring that endoscopy teaching remains of the highest standard.

We also run endoscopy master classes to ensure gastroenterologists maintain their endoscopy skills and learn new techniques. This has been particularly important in Ontario with the proliferation of colonoscopy screening facilities.

RESEARCH PROGRAMS

The Division has been at the forefront of GI research for over 30 years, culminating in the creation of the

Farncombe Family Digestive Health Research Institute (FFDHRI) thanks to a

generous gift of \$15 million from the Farncombe family. Many

of the GI Division faculty are also members of the Institute. The close

proximity between clinicians and scientists with diverse disciplines, such as immunology,

physiology and microbiology, has provided an environment for truly innovative bench-to-bedside research. The FFDHRI houses the Farncombe Family Gnotobiotic Facility, the most productive germ-free facility in Canada. Together with the metagenomic lab, this will allow us to understand how gut flora interact with the host to cause disease in the GI tract and beyond.

Dr. Paul Moayyedi is the nominated principal investigator for a CIHR-funded Strategy for Patient-Oriented Research (SPOR) chronic disease network. This is a Canadian-wide multidisciplinary team termed the **I**nflammation, **M**icrobiome and **A**limentation: **G**astro-intestinal and **N**europsychiatric **E**ffects (IMAGINE) network. The network has attracted \$35 million in funding and will evaluate the role the gut microbiome and diet have on inflammatory bowel disease, irritable bowel syndrome and associated psychiatric diseases.

The Upper Gastrointestinal and Pancreatic Diseases (UGPD) Cochrane Review Group also has its base within the gastroenterology division and FFDHRI under the leadership of Dr. Paul Moayyedi and Dr. Grigorios Leontiadis. This produces systematic reviews published in the Cochrane Library that informs clinicians and patients worldwide on evidence-based medicine. Members of the UGPD group are involved in all guidelines produced by the Canadian Association of Gastroenterology and many guidelines from US GI societies. We are the top GI research group in Canada and GI division members have produced over 4,000 peer-reviewed publications that have been cited over 112,000 times.

MAJOR ACHIEVEMENTS

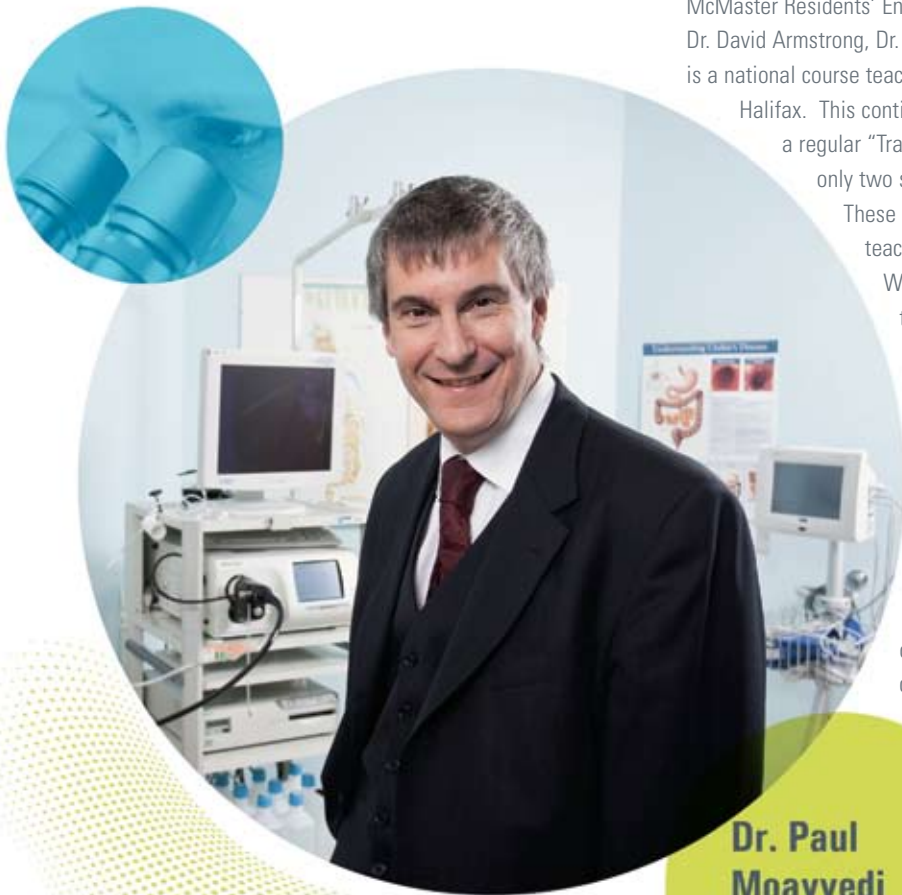
Dr. David Armstrong is the President of the Canadian Association of Gastroenterology for 2016-17.

FUTURE DIRECTIONS

The Farncombe Family Digestive Health Research Institute will provide an innovative environment with the collaboration of clinical and basic science researchers. Our challenge is to maintain this integrated approach of bench-to-bedside research with the reorganization of health care in Hamilton. Our goal is to unravel how nutrition and gut flora interact with the intestinal mucosa to produce health and disease. This applies not only to disorders of the digestive tract, but has implications for diseases in all organ systems. ■

"Our goal is to unravel how nutrition and gut flora interact with the intestinal mucosa to produce health and disease."

— Dr. Paul Moayyedi



Dr. Paul Moayyedi
BSc, MB, ChB, PhD, FRCP, FRCPC, AGAF, FACC
Division Director

General internal medicine

It gives me great pleasure to provide the General Internal Medicine (GIM) annual report for 2016-2017.

The GIM Division at McMaster University continues to provide a robust and vibrant in-patient and out-patient Clinical Teaching Unit educational services at our academic teaching centres. We have Clinical Teaching Units at Hamilton General Hospital, St. Joseph's Healthcare Hamilton, and Juravinski Hospital.

We have an Ambulatory Clinical Teaching Unit at the Boris Clinic. We have been exploring newer models of care for our in-patient and out-patient services and so far the experience has been well received. Because of our fixed number of learners at all levels, we have had to change our models of care. In addition, we are working with the postgraduate program in organizing and getting ready for Competence by Design (CBD) starting July 2018. The feedback from our learners have been extremely positive.

Our research activities have been very well coordinated by our research director, Dr. John You. Multiple individuals in our division are involved in research activities. The focus of research has been in end-of-life care communication, models of care delivery, Point-of-Care Ultrasound research, and simulation research. We provide Alternative Funding Plan (AFP) research grants to

Dr. Akbar Panju
MB ChB, FRCPC, FRCP(Edin),
FRCP(Glasg), FACP
Division Director



Notable contributors Drs. John You and Christian Kraeeker.

members in our division and this is based on a competitive method. We had 15 applications for the research grants and we were able to provide up to \$40,000 from our GIM-AFP funds.

Dr. Christian Kraeeker and Dr. Zara Khalid have been instrumental in working in Global Health initiatives. Dr. Kraeeker has been the lead physician in organizing the internal medicine undergraduate and postgraduate curriculum in Namibia, Africa. Dr. Khalid has been coordinating internal medicine educational activities for the learners in Guyana. In addition, our members have traveled to Uganda to provide educational activities and clinical services. We believe that general internal medicine is extremely well poised in being the leader in GIM activities in those three countries.

We have been fortunate in our ability to recruit exemplary clinician-educators and clinician-researchers. Our clinical scholar program has been extremely robust and our clinical scholars have been focusing in the areas of information technology, quality improvement and patient safety.

Our division continues to hold quarterly meetings where attendance is more than 90%. During those meetings we discuss achievements, challenges, and the future direction of general internal medicine. We have a united division and, over the next year, we hope to increase our out-patient and ambulatory activities, particularly in the management of chronic diseases.

15 — Number of applications for research grants providing up to \$40,000 from GIM-AFP funds.

We had an extremely successful year and look forward to the future. I am grateful to the membership of GIM for working extremely hard and fulfilling our mission of providing clinical service, education and research. ■



GLOBAL INITIATIVES

250,000

Number of front line health care staff trained in the Gentle Persuasive Approaches (GPA) Program.

Despite our growing, aging population, there is a shortage of geriatricians within our region and in Canada. It has been crucial for geriatric medicine undergraduate and residency programs to provide exemplary educational and training programs for our future geriatricians and other physicians who are caring for older persons. Dr.'s Joye St. Onge and Tricia Woo were able to meet this challenge as our Geriatric Medicine Residency and Fellowship program director and Undergraduate Medicine selective coordinator for the past eight years. Our division would like to take this opportunity to express our deepest gratitude to Dr.'s St. Onge and Woo for their dedication and leadership in education and for all they have done to advance the training of our future physicians.

EDUCATIONAL HIGHLIGHTS:

Our program has been very fortunate to have Dr. Tricia Woo as its next Geriatric Medicine Residency program director and Dr. Heather McLeod as the Geriatric Medicine selective, faculty coordinator. Dr. Woo leads the Geriatric Skills Day for Faculty of Health Sciences (FHS) students and mentors the National Medical Student and Resident Geriatric Interest Group, and Dr. McLeod is leading the collaboration with the MD school to enhance the geriatric curriculum content in our undergraduate medical program.

Dr. Sharon Marr
BSc, MD, FRCP(C), MEd
Division Director

ADDITIONAL EDUCATIONAL HIGHLIGHTS:

- Dr. David Cowan, board member of Advanced Gerontological Education, provides direction to the Gentle Persuasive Approaches (GPA) Program, which has educated over 250,000 front line health care staff. GPA is now being piloted within nursing colleges and has trained over 2,200 GPA Certified Coaches across Canada;
- Dr. Aliya Khan has led the development of quality improvement tools for the College of Physicians and Surgeons of Ontario with the innovative tools to enhance clinical practice and peer assessment and has taken a lead role in the evaluation of hypophosphatasia in Canadians presenting with atypical femoral fractures;
- The division has continued to collaborate with the Geriatric Education and Research in Aging Sciences (GERAS) Centre, Regional Geriatric Program central (RGPC) and FHS inter-professional planning committee to host the highly successful sixth Annual Geriatric Education Update on "Dementia, Delirium and Depression". We were honoured to present its "2016 Life Long Achievement Award" to Dr. John G. Kelton, executive director of the Michael G. DeGroote Initiative for Innovation in Healthcare at McMaster University, and previous dean of the FHS, vice-president for Health Sciences and dean of the University's Michael G. DeGroote School of Medicine;
- Division members have continued to support generously the Geriatric Certificate Program (GCP) with key educational leaders in the FHS and across Canada. Thus far, there have been over 500 clinicians registered with GCP and 146 graduates.

RESEARCH HIGHLIGHTS:

- Dr. Alexandra Papaioannou's research focuses on the impact of falls, fractures, and frailty, and with her research team continues the success of GERAS with DANCING for Cognition & Exercise (DANCE) Feasibility study, the Osteoporosis Long-Term Care (LTC) strategy, Ontario Ministry of Health (MOH) and LTC, Expanding the Frailty-Sarcopenia Collaborative at GERAS, Hamilton Health Sciences (HHS), RFA strategic initiative program. She is the lead investigator for LTC Ontario Osteoporosis Strategy, and co-director of the Hamilton Canadian Multi-Centre Osteoporosis study;
- Dr. David Cowan's collaborations include the innovative development of remote e-monitoring of older persons after vascular or cardiac surgery;

- Dr. Tricia Woo's Retired Teachers of Ontario Foundation research funding (online Dementia Education Intervention for multidisciplinary post-secondary health care students in Ontario);
- Dr. Joanne Ho's pilot GeriMedRisk, which provides specialized geriatric support to clinicians prescribing medications to older adults. GeriMedRisk has been generously supported by partnerships with McMaster University FHS, Canadian Mental Health Association of Waterloo Wellington, Schlegel U-W Research Institute for Aging, St. Joseph's Health Care Centre (Guelph), Telemedicine Network, Grand River hospital, Ontario Poison Centre, RGPC and St. Peter's Hospital/McMaster Chair of Aging;
- Dr. Richard Sztramko's SPARK Award from the Canadian Centre for Healthy Aging and Brain Health Innovation, Alzheimer's Society, HHS Foundation, and RGPC for his iGeriCare educational modules for caregivers and older persons with dementia.

MAJOR ACHIEVEMENTS:

We want to congratulate the following division members and students/residents for their outstanding accomplishments: Dr. Alexandra Papaioannou received the Ronald Cape Distinguished Service Award at the 2017 Canadian Geriatric Society; Ms. Margaret McNee (MD Class 2017) received the Dr. Irene Turpie Award for her outstanding clinical performance during her Geriatric Subspecialty Selective Clerkship Rotation; Internal medicine residents, Dr. Christina Reppas and Dr. Malik Farooqi, who received the Dr. Christopher Patterson Award for Excellence in Geriatric Research" funded by the St. Peter's Hospital/McMaster University Chair of Aging; Dr. Justin Lee, clinical scholar, received the CIHR New Investigator Patient Safety and Effectiveness and the Ontario Drug Policy Research Network awards, and Canadian Geriatric Society Edmund V. Cowdry Award for the best oral presentation.

SPECIAL THANK YOU TO: Dr. Paul O'Byrne, Dr. Akbar Panju, Dr. John Kelton, Ms. Annette Rosati and the Department of Medicine administrative staff, Ms. Sharon Pierson, Mr. Kevin Sulewski, Dr. Barry Lumb, Dr. Alistair Ingram, Dr. Alexandra Papaioannou, Dr. Brian Misiaszek, Dr. Joyce St. Onge, Dr. Tricia Woo, Ms. Heather McLeod, Ms. Lynne Pacheco, Ms. Lily Consoli, RGPC, division members and their administrative staff for their incredible support and dedication. ■

DIVISION REPORT

Hematology and thromboembolism

The Division of Hematology and Thromboembolism is internationally recognized for its excellence in research, education and patient care. Our members are derived from the Departments of Pathology and Molecular Medicine, Oncology, as well as Medicine. Several division members also hold cross-appointments in Biochemistry & Biomedical Sciences and Health Research Methods, Evidence and Impact.

EDUCATIONAL ACTIVITIES

Division members continued to make important educational contributions at all levels, including clinical mentorship of medical students, internal medicine residents, residents from other specialty programs, and clinical fellows; as well as supervision at the Masters and PhD level in Health Research Methods, Evidence and Impact; Biochemistry & Biomedical Sciences and Medical Education. The Adult Hematology Residency Program, led by Dr. Wendy Lim, and the Transfusion Medicine Area of Focused Competence Diploma Program, which is housed in the Department of Pathology and Molecular Medicine and led by Dr. Michelle Zeller, continued to flourish with training positions in both programs being highly sought. Fellowship programs in Thromboembolism, Malignant Hematology and Red Cell Disorders also continued to attract trainees. Dr. Vinai Bhagirath was named

Dr. Shannon Bates
MDCM, MSc, FRCP(C)
Division Director

the Director of the Adult Thrombosis Medicine Area of Focused Competence Diploma Program, which should receive approval in late 2017.

RESEARCH PROGRAM

The Division has achieved world-wide recognition for its research in thrombosis and hemostasis, platelet physiology and function, blood transfusion therapy, the molecular biology of red cell disorders and clinical trials in malignant hematologic diseases. We house two research organizations, the Thrombosis and Atherosclerosis Research Institute (TaARI, directed by Dr. Jeffrey Weitz) and the McMaster Centre for Transfusion Research (directed by Dr. Donnie Arnold). Funding for our research comes from a variety of sources, including CIHR, the Heart and Stroke Foundation, Canadian Blood Services, and the Hamilton Health Sciences. In 2016-2017, division members were responsible for publications in leading journals, including *New England Journal of Medicine*, *BMJ*, *Lancet Hematology*, *Circulation*, and *Blood*. Dr. Mark Crowther and Dr. John Eikelboom were included in the 2016 Highly Cited Researchers List and Dr. Irwin Walker's paper on the use of anti-thymocyte globulin in patients undergoing unrelated hemopoietic cell transplantation, published in *Lancet Oncology*, was chosen as "Best Paper of the Year" by the Canadian Hematology Society.

MAJOR ACHIEVEMENTS

Professor Nancy Heddle received the Emily Cooley Award and Lectureship from the American Association of Blood Banks, in recognition of her contributions to clinical research and the creation of evidence-based transfusion practices. Dr. John Kelton was conferred with the lifetime title of Distinguished University Professor, the highest honour bestowed by McMaster University, as well as an honorary doctorate of laws from the University of Windsor. Dr. Jeffrey Weitz was elected to the Royal Society of Canada's Academy of Science. Effective July 1, 2017, Dr. Mark Crowther will become the chair of the Department of Medicine. Other faculty receiving academic recognition this year included Dr. Catherine Hayward (acclaimed to a second three-year term as President of the International Society for Laboratory Hematology

"The Division has achieved world-wide recognition for its research in thrombosis and hemostasis, platelet physiology and function, blood transfusion therapy, the molecular biology of red cell disorders and clinical trials in malignant hematologic diseases."

— Dr. Shannon Bates

or ISLH), Ms. Karen Moffat (assistant professor [part-time], re-elected to a second term on the ISLH Board of Directors), and Ms. Allahna Elahie (new appointment as lecturer [part-time] and appointed Transfusion Medicine rotation supervisor for the Adult Hematology, Pediatric Hematology, and General Pathology Residency programs). Hematology Teaching awards were presented to Dr. Wendy Lim, Dr. Irwin Walker Teaching Award, and Mr. Nick Sandercock, Professor Nancy Heddle Teaching Award. Drs. Noel Chan, Parveen Wasi with Graeme Fraser, and Donnie Arnold with Ishac Nazy received this year's Hematology & Thromboembolism AFP-Funded Student Research awards. The 12th McMaster Update in Thromboembolism and Hemostasis (co-chaired by Drs. Mark Crowther and Wendy Lim), third Irwin Walker Day in Blood and Marrow Transplant (co-chaired by Drs. Parveen Wasi and Kylie Lopic), and fourth Annual Division of Hematology and Thromboembolism Winter Gala (planned by Drs. Madeleine Verhovsek, Chris Hillis, Cathy Ross, Troy Climans and Shannon Bates, along with Ms. Ellen Majoros) were also great successes.

FUTURE DIRECTIONS

As a specialty, we are facing rapidly increasing service demands regionally, as well as locally, and our challenge as a group will be to ensure that we continue to deliver exemplary clinical care while building on our educational and research successes. To this end, the benign and malignant hematology services across the city have undertaken to work together to adopt standardized triage and referral pathways in order to address clinic wait-lists. New faculty include two extremely promising research educators, Dr. Deborah Siegal, a graduate of our Adult Hematology Residency Training and Thrombosis Fellowship programs, and Dr. Noel Chan, a hematologist from Australia who completed a Thrombosis Fellowship at McMaster University. We continue to recruit for Clinician-educators and are especially interested in increasing the number of faculty in our division with formal training in education. ■

Infectious diseases



Dr. Mark Loeb
MD, MSc, FRCPC
Division Director

EDUCATIONAL ACTIVITIES

Under the leadership of residency program director, Dr. Kevin Woodward, and deputy director, Dr. Eva Piessens, the residency program in Infectious Diseases provides outstanding support and guidance to trainees in the program. The division shared trainees with Medical Microbiology. Dr. Shariq Haider established a one-year HIV fellowship training program. Drs. Anjali Schroff and Nishma Singhal were co-chairs of the inaugural Continuing Health Sciences Education HSE day in Infectious Diseases. Dr. Shroff became site director for ID at HGH and the longitudinal clinic coordinator for the ID program as of July 2016.

RESEARCH PROGRAMS

Dr. Fiona Smaill is the co-PI of a \$1.17 million CIHR grant to conduct a Phase 1 clinical trial on adenovirus vector TB vaccine. Drs. Smaill and Dominik Mertz edited the third edition of the evidence-based infectious diseases text book. Dr. Mertz conducted the PICS cluster vanguard RCT that has conducted and a new vanguard study to assess negative pressure wound dressings. Dr. Shariq Haider was re-elected to the Board of Directors of Canadian Association of HIV Research as a clinical representative. Drs. Mark Loeb and Mertz developed a list of antibiotics for the WHO for the Essential List of Medicines which will be available for

use in countries around the world. Dr. Loeb has completed the first year of a \$5 million cluster randomized controlled trial to assess whether adjuvanted influenza vaccine in children leads to greater herd immunity. Dr. Loeb is the principal investigator of a trial funded by Joint Global Health Trials competition of UK MRC Wellcome Trust to assess whether inactivated vaccine can reduce adverse vascular events. This is an international trial being conducted in 10 countries involving collaboration from colleagues at PHRI. Using data from his previous Hutterite study comparing live attenuated vaccine to inactivated vaccine, Dr. Loeb, in collaboration with Dr. Mathew Miller, is assessing mucosal and serological IgA and IgG response to both vaccines. Dr. Loeb conducted a randomized trial to assess the immune response of homeopathic vaccines compared to placebo and conventional vaccines. Dr. Loeb completed a randomized controlled trial of probiotics to assess their effect in reducing viral respiratory infections in residents of long-term care facilities.

MAJOR ACHIEVEMENTS

Dr. Daniela Leto was named program director for Medical Microbiology. Dr. Cheryl Main was appointed department education coordinator for Pathology and Molecular Medicine. Dr. Shariq Haider was one of the McMaster University recipients of the 2017 Canadian Association for Medical Education Certificate of Merit awards. Dr. Loeb served as committee member, WHO Task Force, to Evaluate Influenza Data to Inform Vaccine Impact and Economic Modelling. Dr. Loeb continues in his role as chair of the Data Safety and Monitoring Board of an important NIH vaccine trial on influenza H7N9.

FUTURE DIRECTIONS

We will continue to conduct clinical trials and studies using biomarkers, such as genetic and immunologic studies, and continue to work closely with colleagues doing bench research. Division members will continue to engage in various aspects of antibiotic stewardship, vaccination research, cluster randomized controlled trials, diagnostic research, and hospital epidemiology. ■

10

Number of countries involved in Joint Global Health Trials to assess whether inactivated vaccine can reduce adverse vascular events.

\$5M

Value of cluster randomized controlled trial to assess whether adjuvanted influenza vaccine in children leads to greater herd immunity.

Value of CIHR grant to conduct a Phase 1 clinical trial on adenovirus vector TB vaccine.

\$1.17M

“Dr. Loeb and Dr. Mertz developed a list of antibiotics for the WHO for the Essential List of Medicines which will be available for use in countries around the world.”
— Dr. Mark Loeb

Nephrology

EDUCATIONAL ACTIVITIES

The Division of Nephrology continues to be very influential in shaping undergraduate and postgraduate medical education in the Department of Medicine. The inpatient nephrology clerkship rotation continues to be a popular selective amongst the students. Dr. Peter Margetts is in his second term as the director of the McMaster MD/PhD program.

Dr. Azim Gangji continues as the director of the Residency Training program. A tremendous amount of work has been done and we are ready for the July 2017 roll-out of the new approach to medical education and assessment known as "Competence by Design".

Due to the strength and popularity of this program, there are nine fellows pursuing subspecialty training in Nephrology in 2016-17. Additionally, the division has three fellows pursuing post-subspecialty training in transplantation and is one of two centres in the country to receive RCPSC/AFC accreditation for Solid Organ Transplantation. The program is also one of the few in the country that is accredited by the American Society of Transplantation.

The division plays a major role in the Internal Medicine training program. A perennial favorite rotation amongst the residents, training is provided in inpatient nephrology, transplantation and outpatient clinics. Initiatives in simulated procedures

and evaluation exercises, such as the Renal OSCE, continue to be well-received. The city-wide consult service is now offered to subspecialty trainees from other disciplines that are likely to encounter patients with acute kidney injury during their clinical work.

RESEARCH PROGRAMS

The study of kidney disease at both basic science and patient levels continues to be a major academic focus of the division. Closely affiliated with the division of nephrology, the Hamilton Centre for Kidney Research (HCKR) brings clinical and biomedical researchers together where the goal is to improve the lives of patients with chronic kidney disease (CKD) through leading-edge research. Divisional members have published more than 200 peer-reviewed original research publications over the past five years.

Clinical research continues to flourish in the division. Dr. Michael Walsh's study of plasmapheresis in severe vasculitis (PEXIVAS) was recently completed and is the largest RCT in vasculitis ever conducted. He is also the recipient of a CIHR New Investigator Award, and has received CIHR funding to initiate one of the world's largest RCTs of dialysis patients evaluating the role of aldosterone antagonism in reducing cardiovascular events.

Dr. Christine Ribic has taken over the role of director of Internal Medicine Resident Research. Dr. Amber Molnar is the recipient of a KRESCENT New Investigator Award and is a newly appointed scientist with the Institute for Clinical Evaluative Sciences (ICES). Her research focuses on the use of the ICES databases to study hemorrhagic, thrombotic and cardiovascular complications in patients with CKD.

Biomedical research in the division has been very successful, led by the Amgen Canada Chair in Nephrology research, Dr. Richard Austin, who holds multiple CIHR and HSFC operating grants. Dr. Austin's work focuses on novel cellular mechanisms leading to atherogenesis and vascular calcification, an important contributor to premature morbidity and mortality in patients with CKD. Clinician-scientist, Dr. Joan Krepinsky, funded by both CIHR and KFOC, studies the pathogenesis and potential therapies of diabetic and hypertensive kidney disease, as well as the pathogenesis of vascular calcification associated with chronic kidney disease in a joint project with Dr. Austin.

Dr. Peter Margetts, also a clinician-scientist, continues his research into basic mechanisms of peritoneal and renal injury. New projects include the role of epigenetic modification of fibroblasts and fibrocytes in leading to ongoing tissue injury. Dr. Jeffrey Dickhout holds two CIHR operating grants for his studies on the role of ER stress and sodium in both acute kidney injury and progressive renal fibrosis, and holds a Krescent salary award from KFOC.

MAJOR ACHIEVEMENTS

The remarkable educational and research achievements over the past year would not be possible without the ongoing substantial clinical and administrative support provided by many division members, including Dr. Alistair Ingram (chief of Medicine at SJHH), Dr. Darin Treleaven (head of Nephrology Service/director of Renal Transplant program), and Dr. Chris Rabbat (medical director of the Integrated Renal Program at SJHH and Niagara Health Services).

Remarkable growth in peritoneal dialysis, a home-based dialysis therapy, has led to the program becoming one of the largest in Canada. The renal transplant program continues to be an innovative leader in Canada. Participation in the National Living Donor Paired Exchange registry has provided the opportunity for many patients, including those at high immunological risk, to receive a kidney transplant.

The strong leadership from Dr. Azim Gangji has led to the development of what is now a large and diverse training program.

Dr. Michael Walsh has rapidly become a leading clinical trialist in nephrology, helping to narrow a long-standing evidence gap in the clinical care of patients with kidney disease.

Drs. Karen To and Robert Yang developed and are co-directors of the McMaster Peritoneal Dialysis Access Centre by SJHH (MPACS), a centre of excellence for peritoneal dialysis access. Since 2015, they have provided a well-attended, hands-on high fidelity simulation course to train physicians and nurses to perform peritoneal dialysis catheter insertions.

FUTURE DIRECTIONS

The division will continue to lead the way in educational innovation at an undergraduate and postgraduate level.

Several divisional members are leading important clinical trials in nephrology; leadership in the nephrology research community is expected to grow. Increasing research collaborations between divisional members has begun to yield exciting findings in translational research that may lead to novel therapies and tools in the management of patients with kidney disease.

A number of division members now have important leadership roles with the Ontario Renal Network (ORN), a provincial agency which provides more than \$600 million/year in funding for kidney disease care. This provides a unique opportunity for these individuals to help shape the delivery of kidney disease care in Ontario.

The division continues to pride itself in the delivery of high-quality, patient-partnered care; its academic pursuits will always focus on the ultimate goal to improve the lives of patients with kidney disease. ■



Dr. Scott Brimble
MD, MSc, FRCPC
Division Director

DIVISION REPORT

Neurology

FACULTY

The Division of Neurology is one of the largest divisions in the Department of Medicine with over 31 members. The division continues to grow to not only support the neurology needs of 2.3 million people in our region, but to further develop subspecialty programs within neurology. Adjunct neurology faculty are supported and active in teaching and clinical service provision at our regional campuses in Niagara and Waterloo.

EDUCATIONAL ACTIVITIES

Faculty participate in the organization and training of medical students in MF5, and many are tutors for the undergraduate medical program. The neurology residency program has 16 residents in one of the most sought after training programs in the country. Three residents successfully completed their training this year. The postgraduate neurology training program is very education focused, with not only a problem based academic half day, but also weekly clinical neurology rounds; subspecialty rounds in EEG, EMG, and movement disorders; stroke journal club; neuroradiology rounds; stroke rounds; and neuroscience rounds. This year will again host the annual Half Day in Epilepsy, Neuromuscular Day, Half Day in Neurosciences, and the Neuroscience Research Day (in

Dr. Wes Oczkowski
MD, FRCPC
Division Director

collaboration with Neurosurgery and Pediatric Neurology). Many faculty are involved in graduate education. The division has one of the largest fellowship programs and offers formal fellowships in Stroke, Neuromuscular Disorders, Interventional Neuroradiology and Epilepsy. The stroke fellowship continues to receive ongoing support through the Marta and Owen Boris Foundation.

RESEARCH ACTIVITIES

The Stroke Program is very active in research and is involved in many clinical trials including leading one of the largest clinical trials in stroke ever to come out of Canada. The epilepsy program is investigating the prognosis of generalized epileptiform discharges, marijuana use in epilepsy, new agents in status epilepticus, trials on sudden unexpected death in epilepsy, and automated methods of EEG analysis. The neuro-oncology program is actively recruiting and running trials in treatments for patients with brain tumors. The interventional neuroradiology program is recruiting patients into interventional neuroradiology trials. The MS group is participating in a treatment trial in patients with MS. The neuro-restorative group focuses on research in concussion. The neuromuscular group is active in research in new genes for neurological disorders, muscle aging, mitochondrial disease, CIDP, CMT, statin myopathy, and clinical and basic research in ALS.

CLINICAL ACTIVITIES

The Neurology program has a clinical teaching unit situated at the Hamilton General Hospital and provides inpatient consultation services to all the teaching hospitals as well as central south Ontario. The Stroke program is the largest in the province both in clinical volumes, and number of stroke trained neurologists. The Interventional Neuroradiology Program for clot retrieval for large vessel occlusion in ischemic stroke has become one of the busiest programs in the province and a leader in program

Millions of people in the region supported by the Division of Neurology

2.3M

design. The Regional Epilepsy Program and the Epilepsy Monitoring Unit are situated at HGH along with the MS Program. The division provides general neurology outpatient consultation and subspecialty consultation for stroke, complex headache, neuromuscular disorders and ALS, movement disorders, neuro-oncology, neuropsychiatry, and dementia. Two of our neurologists are experts in neuro-critical care and provide support to the ICU and stepdown units.

FUTURE DIRECTIONS

The program will work on balancing the needs of general neurology and the subspecialty programs within the context of our educational activities and academic mission. As our population ages, cognitive impairment and dementia will need to be priority program areas. ■

15

Number of residents in one of the most sought after training programs in neurology

Physical medicine and rehabilitation

CLINICAL SERVICES AND ACADEMIC PROGRAMS

The Division of Physical Medicine and Rehabilitation (PM&R) is committed to advancing the health of the community and providing educational opportunities for medical students, residents and fellows. The Rehabilitation Services Program is a substantial clinical and academic enterprise that encompasses three hospital campuses and two hospital systems. It is one of the largest clinical programs in North America.

Rehabilitation services are provided to a wide variety of patients, including individuals who are recovering from stroke, brain injury, amputation, cancer, as well as fractures. The inpatient program has a compliment of approximately 140 beds. The majority of clinical services are delivered at the Regional Rehabilitation Centre. This is a new purpose-built rehabilitation hospital that is located on the Hamilton General Hospital campus. Additional services are provided at the Juravinski Hospital and SJHH. In addition, there are approximately 30,000 out-patient visits.

UNDERGRADUATE AND POST GRADUATE TRAINING PROGRAM

Drs. Simran Basi and Tatjana Zdravkovic co-lead the undergraduate clerkship program. The program has been reorganized to expose students to the breadth of clinical experiences in PM&R.

Dr. S. Nesathurai
MD MPH FRCPC
Division Director

Dr. Peter Varey serves as the residency program director and Dr. Agnes Chmiel serves as the associate residency program director. The faculty support the second largest residency program in Canada. There are approximately 20 post-graduate trainees.

RESEARCH

Dr. Steve Baker continues to be the leading researcher in neuromuscular rehabilitation in the country with tremendous innovation and groundbreaking research in peripheral nerve and neuromuscular disorders. In recent years, the faculty and residents have presented abstracts and posters at national research meetings including the Congress of Rehabilitation Medicine, American Academy of PM&R, and American Academy of Neuropathology.

“Rehabilitation services are provided to a wide variety of patients, including individuals who are recovering from stroke, brain injury, amputation, cancer, as well as fractures.”

— Dr. Nesathurai

FUTURE DIRECTIONS

The division continues to actively recruit new faculty to support in-patient and out-patient programs. In the context of patient expectations, aging population and technological advances, there remain many unmet clinical needs in the medical school's catchment area. ■

140

Number of beds available for the inpatient program

30,000

Number of out-patient visits to Physical Medicine and Rehabilitation

Respirology

The Division of Respirology is the primary provider for tertiary care service for Southern Ontario. We offer many specialty clinics that attract patients from our region and far beyond. Amongst the “flagships” are our severe airway disease and interstitial lung disease clinics. Our group continues to be successful in a variety of educational and research activities. Below are some of the important highlights.

FACULTY

Dr. Jeremy Hirota began his appointment with the Division of Respirology as an assistant professor in November 2016. Dr. Hirota’s research involves respiratory mucosal immunology and is focused on lung health and disease. Dr. Paul O’Byrne commenced his new role as the dean and vice-president of the Faculty of Health Sciences at McMaster University and dean of the Michael G. DeGroot School of Medicine on July 1, 2016. Dr. Martin Kolb was appointed as holder of the Moran Campbell Chair in Respiratory Medicine. Dr. Parameswaran Nair was appointed as inaugural holder of the Frederick Hargreave Teva Innovation Chair in Airway Diseases. Dr. Helen Neighbour became the Undergraduate program director in the Department of Medicine. Dr. Mark Inman was appointed chair of the Hamilton Research Ethics Board and expands the very strong contribution of respirology faculty to this important activity.

Dr. Martin Kolb
MD, PhD
Division Director,
Research Director,
Associate Professor

EDUCATIONAL ACTIVITIES

Under the leadership of our program director, Dr. Rebecca Amer, the Respirology Residency Training Program welcomed three new trainees; Jane Turner, Madhu Chari, and Ciaran Scallan. Our capacity to provide a respirology training experience for rotating residents from other postgraduate programs such as Internal Medicine, Anesthesia, Radiation Oncology, and Head and Neck Surgery has been considerably enhanced by offering electives at the Hamilton General and Juravinski Hospitals. One new clinical scholar has joined the division, Dr. Aasim Hasany, starting July 2016. Dr. Hasany has an academic interest in sleep medicine and will be working under the supervision of Drs. Powles, Li and Simms.

RESEARCH PROGRAMS

The research within the Division of Respirology continues to be very diverse. Dr. Malcolm Sears is the director of the Canadian Healthy Infant Longitudinal Development study (CHILD) which has enrolled an impressive number of infants, almost 3,000, from across Canada. The first series of publications have come out by now, and it is expected that this activity will be thriving for the next 10-15 years at least. One of the many questions that will be addressed in this study are to identify and better understand early determinants of factors that lead to asthma in children, adolescents and young adults. Our sputum lab at the Firestone Institute for Respiratory Health, under the leadership of Dr. Param Nair as medical director and Dr. Helen Neighbor as deputy director, is world-renowned and attracts many clinical trials that aim at personalized medicine to treat severe asthma and COPD. Peptide immunotherapy for allergic diseases and asthma is another major research area, led by Dr. Mark Larché. Further, our faculty members continue to investigate the basic mechanisms of airway and vascular smooth muscle cells in airway disease. The labs of Drs. Ask, Janssen, Hirota and Kolb explore the cellular and molecular biology of pulmonary fibrosis with substantial translational research. The number of pre-clinical and early clinical trials that are conducted in this field are increasing every year. With the recruitment of Dr. Hambly, our division will be even better positioned to do this research and solidify its national leadership status in pulmonary fibrosis and newly also in pulmonary hypertension. Funding for these research programs is provided by CIHR, CFI, the OTS, the NIH and

other public agencies. Substantial support is also obtained through collaborative research with the pharmaceutical industry.

AWARDS

Dr. Parameswaran Nair received the 2016 Leadership Award for Health Research and Bastable-Potts Asthma Research Award. Dr. Malcolm Sears was awarded the J. Allyn Taylor International Prize in Medicine. Our residents vote each year for winners of two local awards, one for clinical education and one for research mentorship. The winners for 2016 were Dr. Jacob Gelberg and Dr. Helen Neighbour, respectively.

FUTURE DIRECTIONS

The development of collaborative clinical programs across the city of Hamilton and within the larger region is a major challenge and goal for our division. Dr. Gerard Cox continues to co-ordinate these activities. The most successful initiative is the Diagnostic Assessment Program for Lung Cancer, a joint undertaking with Cancer Care Ontario (CCO) and St. Joseph’s Healthcare, Hamilton that involves Nursing, Thoracic Surgery, Respirology, Diagnostic Imaging and Pathology. This program has drastically reduced wait times for patients undergoing investigation of suspicious lung lesions. Since its initiation in 2010, it has grown to be one of the largest programs in the country. Another innovative program is the combined Respirology/Rheumatology/Renal clinic that cares for patients with complex multi-system and lung disorders (Drs. Cox, Kolb, Hambly, Khalidi, and Walsh), a major attraction for trainees, not only from our own area but also from many other training programs across Ontario and Canada. Our Sleep Medicine program continues its expansion. In the next years we will slowly reshape our division and expect a smooth transition between some colleagues who are preparing for retirement and young colleagues who are eager to join us. The next couple of years will bring many new challenges that are not different between the divisions of the Department of Medicine. The major ones are on the research side, the changing funding environment and new peer-review system of the CIHR, and on the educational side, the new competency-based training of residents and fellows. However, the Division of Respirology has an enthusiastic faculty who are all committed to move into the future. ■

DIVISION REPORT

Rheumatology

ACKNOWLEDGEMENT

This year we sadly lost our colleague Dr. William Bensen, a doctor who had a vision of rheumatology that involved physicians leading a team of allied health professionals including nurses, occupational therapists, physiotherapists, pharmacists and social workers working cooperatively with

The Arthritis Society for the care of those with arthritis.

Dr. Bensen was constantly striving to improve care through innovation. He recognized that the major limitation to care was the manpower shortage of trained rheumatologists.

As an educator, Dr. Bensen was a titan. He was a knowledgeable charismatic speaker who could communicate equally with the public, medical students, residents and other physicians. Those who have heard him speak would recognize his skills as an orator.

Dr. Bensen continued to influence the rheumatology community and McMaster University Medical School through his involvement with the White Coat Ceremony and the Annual Founder's dinner. In addition, he introduced the Joy of Rheumatology dinner celebration to attract medical students to our specialty.

The Ontario Rheumatology Association honoured Dr. Bensen with the Rheumatologist of the Year Award this spring. Dr.

Bensen will be remembered for the significant contributions he made to the care of patients with rheumatic diseases.

EDUCATIONAL ACTIVITIES

The Postgraduate training program continues to flourish under Dr. Nader Khalidi's strong leadership and the program is nationally recognized for its excellent teaching. The applicant pool for trainees continues to be of the highest calibre.

The program offers sub-specialty clinics in Lupus, Scleroderma, Vasculitis, Metabolic Bone Disease as well as multi-disciplinary clinics with Respirology, Nephrology and Immunology. The Division also provides educational support for Neurology, Physiatry, Internal Medicine and Ophthalmology. Dr. Mark Matsos will be co-chair of the recently established Internal Medicine Competence by Design Committee.

The faculty has strong representation across the undergraduate program in tutoring, professional skills, MSK boot camp, clerkship selective and supervising Medical Foundation 5.

Outreach and community learning experiences are provided by the many associated clinical faculty in Hamilton, Burlington, St. Catharines, Cambridge and Kitchener-Waterloo.

Our highly rated 'Clinical Day in Rheumatology: the pearls you need to know' will be held again this year in November.

RESEARCH

Research activity and funding support has been broadly based in the areas of metabolic bone disease, lupus, scleroderma, inflammatory arthritis, and vasculitis.

Multiple grants have been supported by CIHR, HAHSO Innovation Fund, NIH, The Arthritis Society, The Canadian Rheumatology Association as well as industry partners.

Collaboration with Radiology, Geriatrics, Engineering and Rehabilitation Sciences have continued.

Dr. Rick Adachi's work continues to be recognized internationally as one of the most published faculty at St. Joseph's Health Care. He has several peer-reviewed grants.

Dr. Nader Khalidi has been most productive in expanding work in new treatments for vasculitis with NIH and industry funding.

Dr. Margaret Larché continues her work in Scleroderma and imaging in inflammatory arthritis.

Our Lupus Clinic physicians, Drs. Mark Matsos, Derek Haaland, Judah Denburg and Kim Legault have begun enrolling patients in the CaNIOS database, a longitudinal cohort of Canadian SLE patients.

A new role of research co-ordinator has been developed to facilitate faculty development, and increase research potential and collaboration within the division and the university. Dr. Karen Beattie is a welcome addition to our group as facilitator and expert consultation for rheumatology research projects.

MAJOR ACHIEVEMENTS

- A new on call roster provides an urgent consultation service on a full-time basis for all hospitals and out-patients in the region
- Dr. Maggie Larché's teaching skills have been endorsed by receiving two teaching awards this year. She continues to supervise the clerkship rheumatology selective and elective students as well as training students, residents and fellows
- Dr. Nader Khalidi is the vice-president of CanVasc (Canadian Vasculitis Research Network). He is involved in numerous international research projects in Vasculitis (PEXIVAS/DCVAS). He has established a unique local database in GCA that encompasses the role of MRI of temporal arteries versus temporal artery biopsy in Giant Cell Arteritis
- Dr. Kim Legault has been appointed deputy research director for the Internal Medicine Residency program, overseeing resident projects. She continues to work on several research projects including guidelines in SLE and CAPS, and the cohort study rivaroxaban in antiphospholipid syndrome
- Dr. Mark Matsos is an investigator in the LuCIN (Lupus clinical investigator network)
- Dr. Arthur Lau is the new MSK sub-unit planner for Medical Foundation 5
- Dr. Rajendra Carmona is the new director of Medical Foundation 5. He has garnered further success with his MSK Clinical Skills videos, and Injection Techniques videos which continue to receive international acclaim
- Dr. Walter Kean has published book chapters on 'Osteoarthritis' and 'Gastrointestinal Complications of Anti-Rheumatic Drugs'
- Our first annual Clinical Day in Rheumatology was extremely successful
- Dr. Karen Beattie has a new role of research coordinator, established to increase productivity, scholarship and collaboration within the university
- The late Dr. William Bensen was awarded Rheumatologist of the Year by the Ontario Rheumatology Association

FUTURE DIRECTIONS

The division has collectively developed a consensus document in the form of a strategic plan to lay out the current and proposed activities for the next three to five years.

Our vision is to be recognized for leadership and innovation in education, research and inter-disciplinary patient-centered care.

As director of the Division of Rheumatology, I am excited by our strategic plan. Together with my esteemed colleagues and excellent trainees, I anticipate execution of several objectives to meet our main goals of exemplary patient care, education and ongoing research. ■



Dr. Alfred Cividino
BASC, MD, FRCPC, FACR
Division Director