We Will All Learn Together

Globalizing Surgical Education

Department of Pediatric Surgery Grand Rounds
October 7, 2021

Sherif Emil, MD,CM, FACS, FRCSC, FAAP

Mirella & Lino Saputo Chair in Pediatric Surgical Education &
Patient and Family-Centered Care
Associate Chair for Education
Department of Pediatric Surgery
Associate Member: Institute for Health Services Education
McGill University Faculty of Medicine
Director; Harvey E. Beardmore Division of Pediatric Surgery
The Montreal Children's Hospital; McGill University Health Centre

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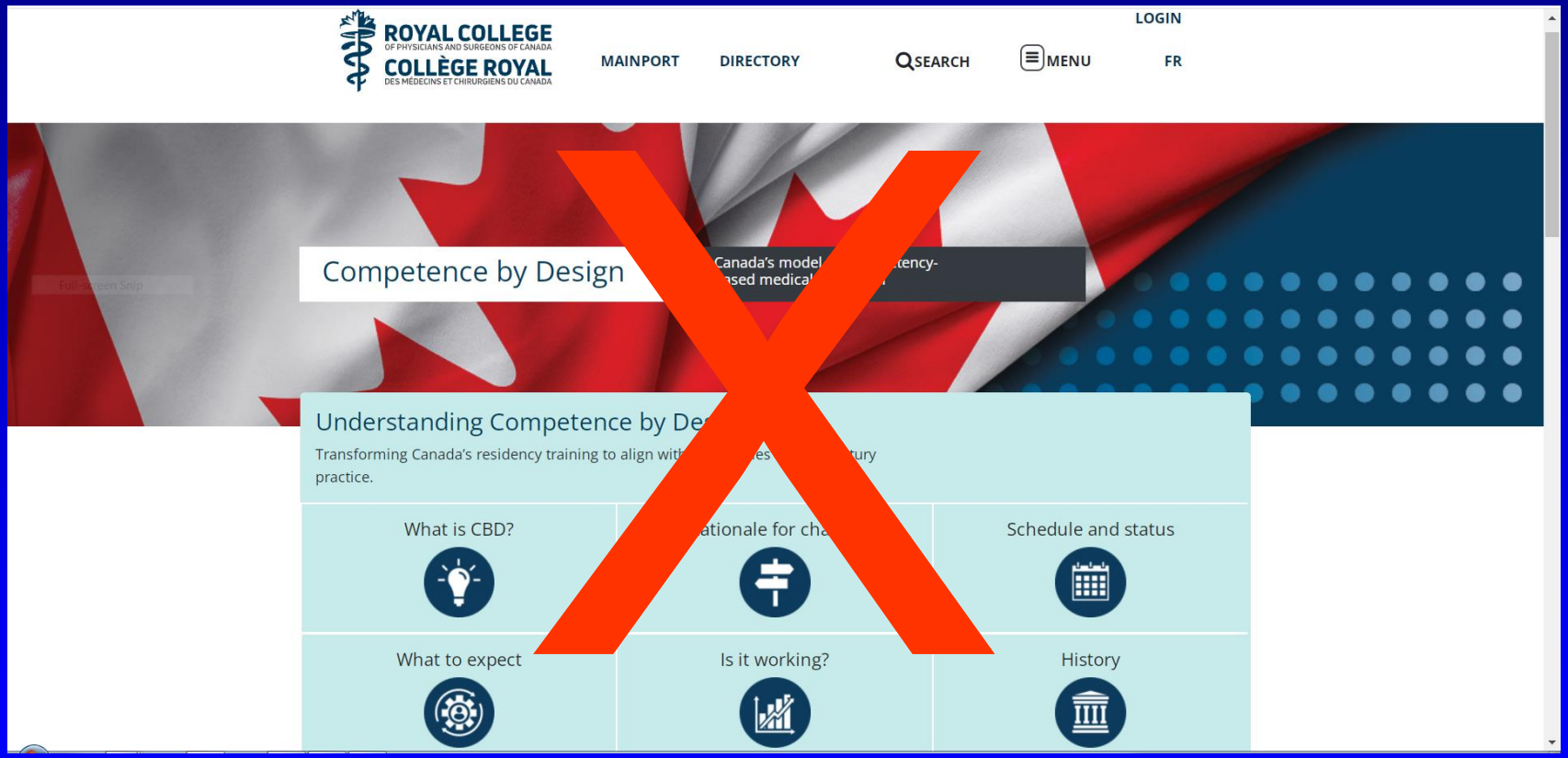
Disclosures

- Pediatric Surgery Specialty Consultant
  - Mercy Ships International
- Author
  - Clinical Pediatric Surgery: A Case-Based Interactive Approach

Objectives

- Describe the benefits of surgical education exchange programs.
- Demonstrate the outreach potential of web-based global surgical education.
- Describe opportunities for engagement in global surgical education.

Surgical Education is Undergoing a Major Transformation



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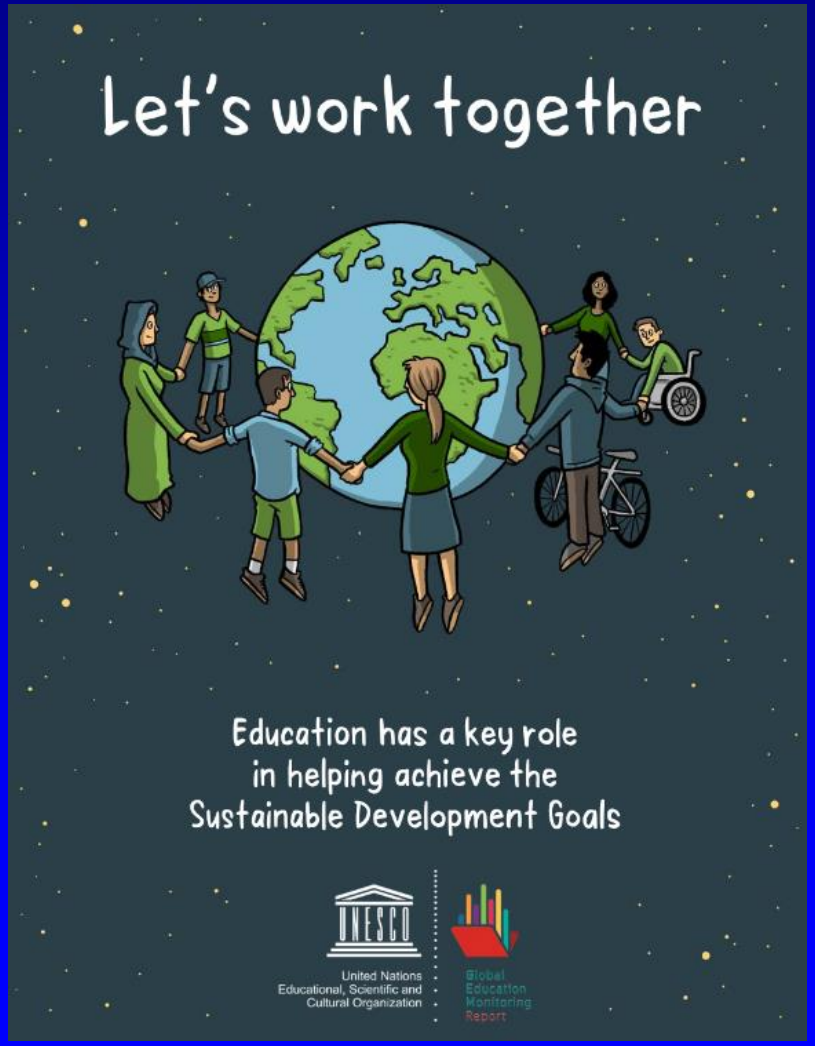
Surgical Education is Undergoing a Major Transformation



Global Surgery

Study, research, practice, and advocacy that seek to improve health outcomes and achieve health equity for **all** people who require surgical care, with a special emphasis on underserved populations and populations in crisis

Global Surgery & Surgical Education

Bath M, Bashford T, Fitzgerald JE. What is 'global surgery'? Defining the multidisciplinary interface between surgery, anaesthesia and public health. BMJ Global Health 2019;4:e001808.

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North-South Disparity

of practicing pediatric surgeons in the 5 largest US metropolitan areas (3,300,000 children)

=

# of practicing pediatric surgeons in sub-Saharan Africa (500,000,000 children)

Disparity = Mortality

Mortality from gastrointestinal congenital anomalies at 264 hospitals in 74 low-income, middle-income, and high-income countries: a multicentre, international, prospective cohort study

*Global PaedSurg Research Collaboration**

Summary

Background Congenital anomalies are the fifth leading cause of mortality in children younger than 5 years globally. Many gastrointestinal congenital anomalies are fatal without timely access to neonatal surgical care, but few studies have been done on these conditions in low-income and middle-income countries (LMICs). We compared outcomes of the seven most common gastrointestinal congenital anomalies in low-income, middle-income, and high-income countries globally, and identified factors associated with mortality.

Methods We did a multicentre, international prospective cohort study of patients younger than 16 years, presenting to hospital for the first time with oesophageal atresia, congenital diaphragmatic hernia, intestinal atresia, gastroschisis, exomphalos, anorectal malformation, and Hirschsprung's disease. Recruitment was of consecutive patients for a minimum of 1 month between October, 2018, and April, 2019. We collected data on patient demographics, clinical status, interventions, and outcomes using the REDCap platform. Patients were followed up for 30 days after primary intervention, or 30 days after admission if they did not receive an intervention. The primary outcome was all-cause, in-hospital mortality for all conditions combined and each condition individually, stratified by country income status. We did a complete case analysis.

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See **Comment** page 280

*Collaborating authors are listed in the appendix (pp 2–12)
Correspondence to Dr Naomi J Wright, King's Centre for Global Health and Health Partnerships, School of Population Health and Environmental Sciences, King's College London, London SE5 9RJ, UK
naomiwright@doctors.org.uk

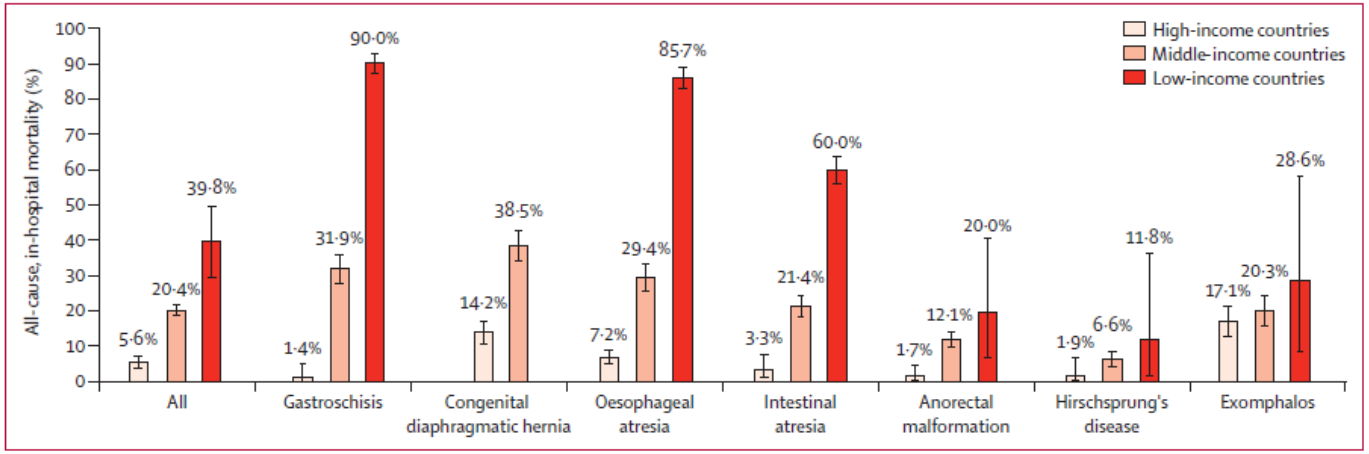

Figure 3: **All-cause, in-hospital mortality**

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An Inverse Relationship!

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Global comparison of pediatric surgery workforce and training

Priti Lalchandani [a], James C.Y. Dunn [a,b,*]

[a] David Geffen School of Medicine, University of California, Los Angeles, Los Angeles, CA 90095-7035, USA
[b] Department of Surgery, Division of Pediatric Surgery, University of California, Los Angeles, Los Angeles, CA 90095-1749, USA

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ABSTRACT

Introduction: The number of pediatric surgeons and their distribution vary greatly throughout the world. The purpose of this study is to examine potential influential factors including the length of education and training, pediatric population, birth rate, and gross domestic product (GDP) per capita.
Methods: An internet search was conducted to determine the duration of education from grade school to pediatric surgery fellowship, number of pediatric surgeons, birth rate, GDP, and population under 15 years of age in 15 countries. The number of pediatric surgeons per million children was correlated with these factors.
Results: The number of pediatric surgeons per million children varied from 0.51 to 29.3. The total length of education from grade school to completion of pediatric surgery training ranged from 23 to 29 years. There was no correlation between pediatric surgeons per million children with the duration of training. The number of pediatric surgeon per million children was inversely correlated with the birth rate. There was a positive correlation between the GDP per capita and pediatric surgeons per million children.
Conclusion: There is a tremendous variability in pediatric surgeons around the world. There appears to be a significant shortage of pediatric surgeons in countries with a high birth rate and low GDP per capita.

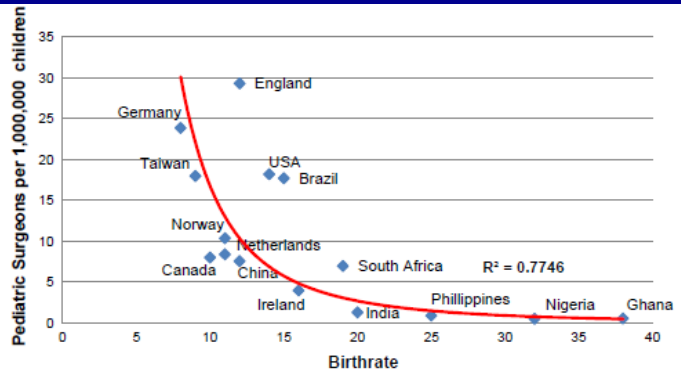

Fig. 1. The number of pediatric surgeons per million children is inversely correlated with birth rate.

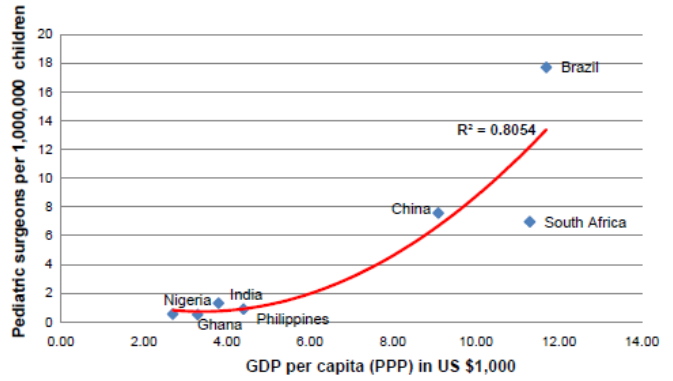

Fig. 2. The number of pediatric surgeons per million children is positively correlated with the GDP per capita in countries with less than US$20,000 per capita.

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Workforce Density & Mortality

Journal of Pediatric Surgery 55 (2020) 493–512

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Global Surgery Papers

Defining the critical pediatric surgical workforce density for improving surgical outcomes: a global study☆

Doulia Hamad, Yasmine Yousef, Natasha G. Caminsky, Elena Guadagno, Viet Anh Tran, Jean-Martin Laberge, Sherif Emil, Dan Poenaru *

Division of Pediatric General and Thoracic Surgery, The Montreal Children's Hospital, McGill University Health Centre, Montreal, Quebec, Canada

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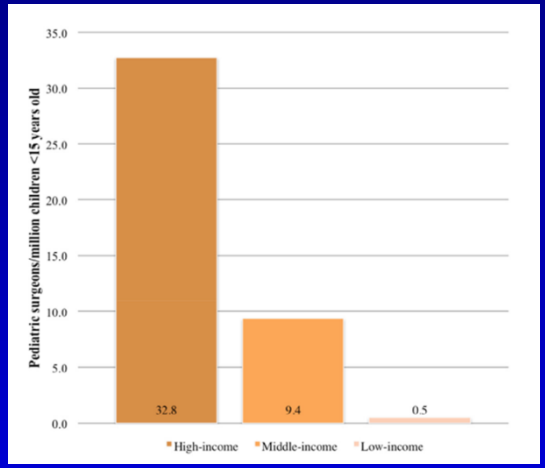
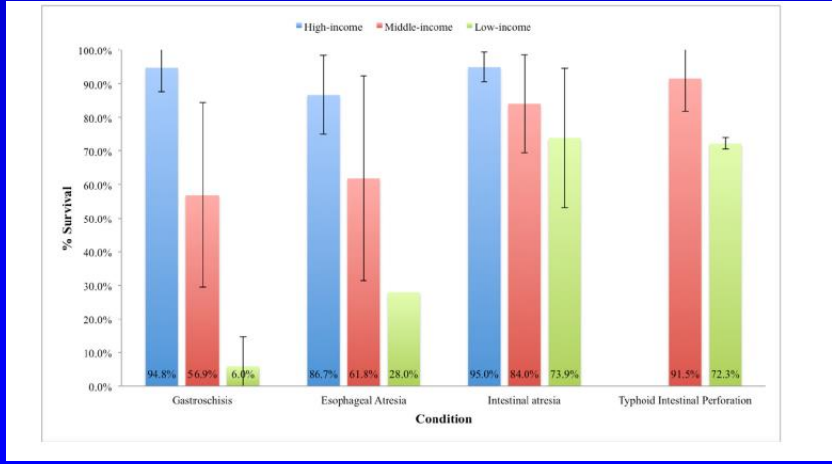
ABSTRACT

Purpose: Low- and middle-income countries (LMICs) have only 19% of the global surgical workforce yet see 80% of worldwide deaths from noncommunicable diseases. We aimed to interrogate the correlation between pediatric surgical workforce density (PSWD) and survival from pediatric surgical conditions worldwide.
Methods: A systematic review of online databases identified outcome studies for key pediatric surgical conditions (gastroschisis, esophageal atresia, intestinal atresia, and typhoid perforation) as well as PSWD data across low-income (LICs), middle-income (MICs), and high-income countries (HICs). PSWD was expressed as the number of PSs/million children under 15 years of age and we correlated this to surgical outcomes for our case series.
Results: PSWD ranged between zero (Burundi, The Gambia, and Mauritania) and 125.2 (Poland) across 86 countries. Outcomes for at least one condition were obtained in 61 countries: 50 outcomes in HICs, 52 in MICs and 8 in LICs. The mean survival in our case series was 42.3%, 69.4% and 91.6% for LICs, MICs, and HICs, respectively. A PSWD ≥4 PSs/million children under 15 years of age significantly correlated to odds of survival ≥80% (OR 16.8, $p < 0.0001$, 95% CI 5.66–49.88). Specifically in the studied LICs and MICs, increasing the PSWD to 4 would require training 1427 additional surgeons.
Conclusion: Using a novel approach, we have established a benchmark for the scale-up of pediatric surgical workforce, which may support broader efforts to reduce childhood deaths from congenital disease.
Levels of evidence: 2c – Outcomes Research.





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Pediatric Surgical Capacity

Journal of Pediatric Surgery 52 (2017) 843–848

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Journal of Pediatric Surgery

journal homepage: www.elsevier.com/locate/jpedsurg

Pediatric surgical capacity in Africa: Current status and future needs

Asra Toobaie [a], Sherif Emil [a], Doruk Ozgediz [b], Sanjay Krishnaswami [c], Dan Poenaru [a,*]

[a] Division of Pediatric General and Thoracic Surgery, The Montreal Children's Hospital, McGill University Health Centre, Montreal, Quebec, Canada
[b] Department of Surgery, Yale University, New Haven, CT, USA
[c] Department of Surgery, Oregon Health and Sciences University, Portland, Oregon, USA

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Workforce
Facilities
Training program
Africa

ABSTRACT

Background: African pediatric surgery (PS) faces multiple challenges. Information regarding existing resources is limited. We surveyed African pediatric surgeons to determine available resources and clinical, educational, and collaborative needs.

Methods: Members of the Pan-African Pediatric Surgical Association (PAPSA) and the Global Pediatric Surgery Network (GPSN) completed a structured email survey covering PS providers, facilities, resources, workload, education/training, disease patterns, and collaboration priorities.

Results: Of 288 deployed surveys, 96 were completed (33%) from 26 countries (45% of African countries). Median PS providers/million included 1 general surgeon and 0.26 pediatric surgeons. Median pediatric facilities/million included 0.03 hospitals, 0.06 ICUs, and 0.17 surgical wards. Neonatal ventilation was available in 90% of countries, fluoroscopy in 70%, TPN in 50%, and frozen section pathology in 35%. Median surgical procedures/institution/year was 852. Median waiting time was 40 days for elective procedures and 7 days? for emergencies. Weighted average percent mortality for key surgical conditions varied between 1% (Sierra Leone) and 54% (Burkina Faso). Providers ranked collaborative professional development highest and direct clinical care lowest priority in projects with high-income partners.

Conclusions: The broad deficits identified in PS human and material resources in Africa suggest the need for a global collaborative effort to address the PS gaps.

Level of evidence: Level 5, expert opinion without explicit critical appraisal.

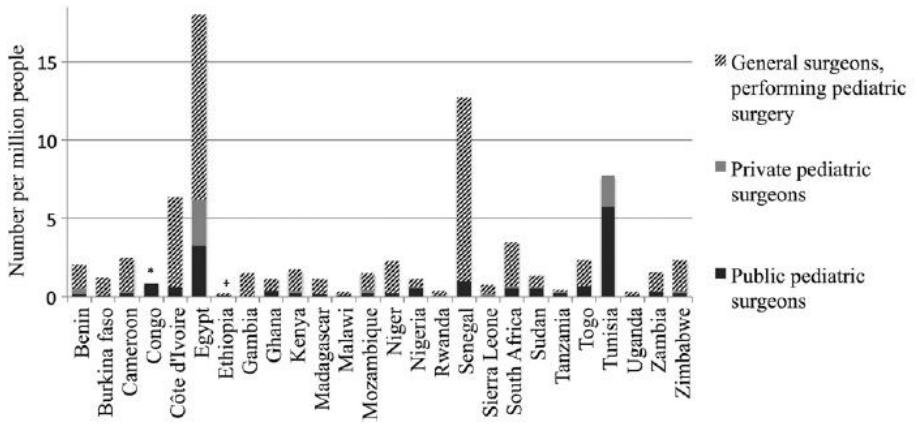

Fig. 1. Median core providers for pediatric surgery per million African population. Information was unavailable on + private pediatric and * general surgeons.

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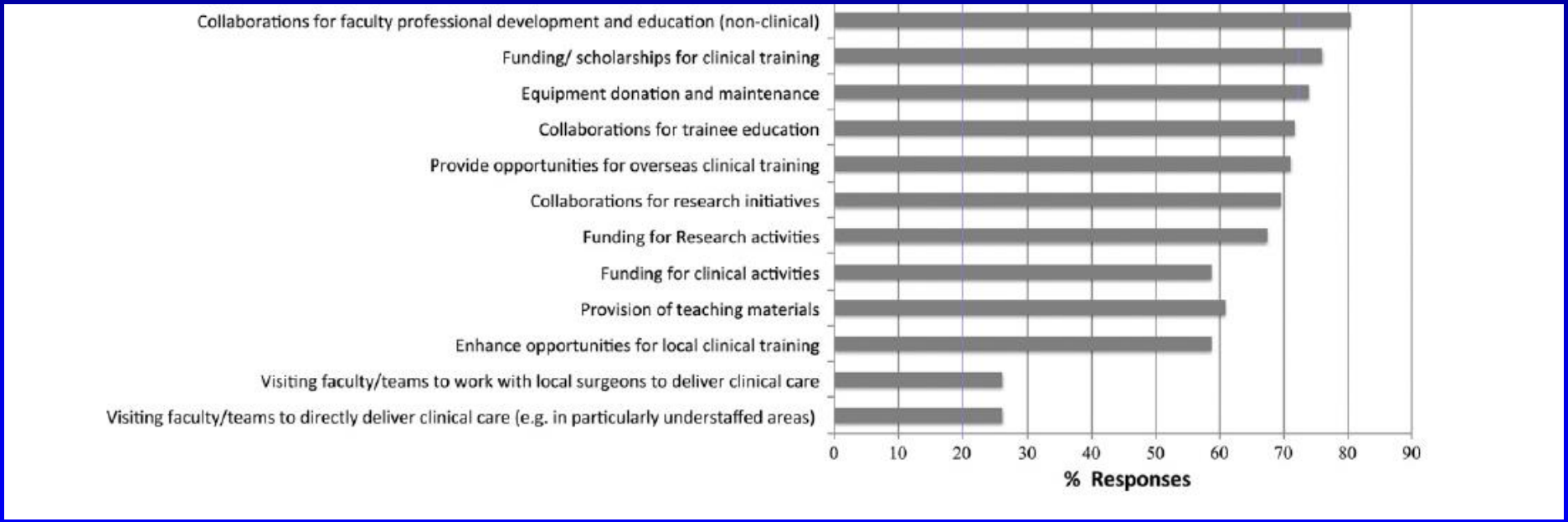
Perceived Needs



What's In It For Us?

- > 30% of graduating medical students in 2010 had international educational experience.
  - 42% increase since 2003.
- 2/3 of applicants to surgical residencies would be more interested in a program that offers international training.
- Most medical schools in North America and Europe have established global health programs.

- Merson MH. University engagement in global health. N Engl J Med 2014;370:1676–8.
- Callan JF, Petroze RT, Abelson J, et al. Engaging academic surgery in global health:challenges and opportunities in the development of an academic track in global surgery.Surgery 2013;153:316–20.

Interest of Surgical Residents

JOURNAL OF SURGICAL RESEARCH • AUGUST 2018 (228) 112–117

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journal homepage: www.JournalofSurgicalResearch.com

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Exploring residents' interest and career aspirations in global surgery

Check for updates

Peter F. Johnston, MD,[a,] Anthony Scholer, MD,[a] Joanelle A. Bailey, MD,[a] Gregory L. Peck, DO,[b] Shahid Aziz, DMD, MD,[c] and Ziad C. Sifri, MD, FACS[a]*

[a] Rutgers New Jersey Medical School, Newark, New Jersey
[b] Rutgers Robert Wood Johnson Medical School, New Brunswick, New Jersey
[c] Rutgers School of Dental Medicine, Newark, New Jersey

- 74 surgical residents.
- ***82%:*** interest in global surgery.
- ***65%:*** prefer international electives.
- ***76%:*** plan to incorporate global surgery into their career.

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Benefits for Surgical Residents

Original Communications

The benefits of international rotations to resource-limited settings for U.S. surgery residents

Jaymie A. Henry, MD, MPH,[a] Reinou S. Groen, MD,[a,b] Raymond R. Price, MD,[a,c] Benedict C. Nwomeh, MD, MPH,[a,d] T. Peter Kingham, MD,[a,e] Mark A. Hardy, MD,[a,f] and Adam L. Kushner, MD, MPH,[a,f] *New York, NY, Amsterdam, the Netherlands, Salt Lake City, UT, and Columbus, OH*

Background. *U.S. surgery residents increasingly are interested in international experiences. Recently, the Residency Review Committee approved international surgery rotations for credit toward graduation. Despite this growing interest, few U.S. surgery residency programs offer formal international rotations. We aimed to present the benefits of international surgery rotations and how these rotations contribute to the attainment of the 6 Accreditation Council for Graduate Medical Education (ACGME) competencies.*

Methods. *An e-mail–based survey was sent in November 2011 to the 188 members of Surgeons OverSeas, a group of surgeons, residents, fellows, and medical students with experience working in resource-limited settings. They were asked to list 5 benefits of international rotations for surgery residents. The frequency of benefits was qualitatively grouped into 4 major categories: educational, personal, benefits to the foreign institution/Global Surgery, and benefits to the home institution. The themes were correlated with the 6 ACGME competencies.*

Results. *The 58 respondents (31% response rate) provided a total of 295 responses. Fifty themes were identified. Top benefits included learning to optimally function with limited resources, exposure to a wide variety of operative pathology, exposure to a foreign culture, and forming relationships with local counterparts. All ACGME competencies were covered by the themes.*

Conclusion. *International surgery rotations to locations in which resources are constrained, operative diseases vary, and patient diversity abound provide unique opportunities for surgery residents to attain the 6 ACGME competencies. General surgery residency programs should be encouraged to establish formal international rotations as part of surgery training to promote resident education and assist with necessary oversight. (Surgery 2013;153:445-54.)*

- Optimal function with limited resources.
- Exposure to a wide variety of surgical pathology.
- Exposure to a foreign culture.
- Forming relationships with local counterparts.

6 ACGME Core Competencies

Clinical Need

AAST 2016 PLENARY PAPER

International rotations: A valuable source to supplement operative experience for acute-care surgery, trauma, and surgical critical care fellows

Paula Ferrada, MD, Rao R. Ivatury, MD, David A. Spain, MD, Kimberly A. Davis, MD, MBA, Michel Aboutanos, MD, MPH, John J. Fildes, MD, *and* **Thomas M. Scalea, MD**, *Richmond, Virginia*

BACKGROUND: Acute-care surgery (ACS), trauma, and surgical critical care (SCC) fellowships graduate fellows deemed qualified to perform complex cases immediately upon graduation. We hypothesize international fellow rotations can be a resource to supplement operative case exposure.

METHODS: A survey was sent to all program directors (PDs) of ACS and SCC fellowships via e-mail. Data were captured and analyzed using the RED-Cap (Research Electronic Data Capture) tool.

RESULTS: The survey was sent to 113 PDs, with a response rate of 42%. Most fellows performed less than 150 operative cases (59.5%). The majority of PDs thought the operative exposure either could be improved or was not enough to ensure expertise in trauma and emergent general surgery. Only a minority of the PDs found their case load exceptional (can be improved: 43%, not enough: 30% exceptional: 27%). Most PDs thought an international experience could supplement the breadth of cases, provide research opportunities, and improve understanding of trauma systems (70%). Ten sites offered international rotations (70%). Most fellowships would be willing to provide reciprocity to the host institution (90%).

CONCLUSIONS: The majority of PDs for ACS, trauma, and SCC programs perceive a need for increased quality and quantity of operative cases. The majority recognize international fellow rotations as a valuable tool to supplement fellows' education. (*J Trauma Acute Care Surg.* 2017;82: 51–57.

KEY WORDS: Acute-care surgery; global surgery; international surgery; surgical education.

- 47 program directors.
- Low volume operative exposure.
- International rotation helpful to supplement exposure.
- 90% willing to offer reciprocity to the host institution.

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Academic Need

AAS – SUS- ACS OGB Position Paper

Value of Global Surgical Activities for US Academic Health Centers: A Position Paper by the Association for Academic Surgery Global Affairs Committee, Society of University Surgeons Committee on Global Academic Surgery, and American College of Surgeons' Operation Giving Back

Check for updates

Jennifer Rickard, MD, MPH, Ekene Onwuka, MD, MS, Saju Joseph, MD, FACS, Doruk Ozgediz, MD, MSc, FACS, Sanjay Krishnaswami, MD, FACS, Tolulope A Oyetunji, MD, MPH, FAAP, Jyotirmay Sharma, MD, FACS, Rashna Farhad Ginwalla, MD, MPH, FACS, Benedict C Nwomeh, MD, MPH, FACS, Sudha Jayaraman, MD, MSc, FACS, for the Academic Global Surgery Taskforce

BACKGROUND: Academic global surgery value to low- and middle-income countries (LMICs) is increasingly understood, yet value to academic health centers (AHCs) remains unclear.

STUDY DESIGN: A task force from the Association for Academic Surgery Global Affairs Committee and the Society for University Surgeons Committee on Global Academic Surgery designed and disseminated a survey to active US academic global surgeons. Questions included participant characteristics, global surgeon qualifications, trainee interactions, academic output, productivity challenges, and career models. The task force used the survey results to create a position paper outlining the value of academic global surgeons to AHCs.

RESULTS: The survey had a 58% (n = 36) response rate. An academic global surgeon has a US medical school appointment, spends dedicated time in an LMIC, spends vacation time doing mission work, or works primarily in an LMIC. Most spend 1 to 3 months abroad annually, dedicating <25% effort to global surgery, including systems building, teaching, research, and clinical care. Most are university-employed and 65% report compensation is equivalent or greater than colleagues. Academic support includes administrative, protected time, funding. Most institutions do not use specific global surgery metrics to measure productivity. Barriers include funding, clinical responsibilities, and salary support.

CONCLUSIONS: Academic global surgeons spend a modest amount of time abroad, require minimal financial support, and represent a low-cost investment in an under-recognized scholarship area. This position paper suggests measures of global surgery that could provide opportunities for AHCs and surgical departments to expand missions of service, education, and research and enhance institutional reputation while achieving societal impact. (J Am Coll Surg 2018;227:455–466.

- Global surgery is a defined academic surgical specialty and avenues for promotion should be clearly delineated.
- US academic surgical departments should recognize the value of academic global surgery.
- US academic surgical departments should provide support for academic global surgeons.

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Academic Global Surgery

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A Win-Win

Haile Debas, MD,CM,FACS,FRCSC

VIEWPOINT

PACIFIC COAST SURGICAL ASSOCIATION

The Emergence and Future of Global Surgery in the United States

Haile T. Debas, MD
Global Health Sciences, University of California, San Francisco; and Department of Surgery, University of California, San Francisco.

Global surgery is evolving into a new field of study with breathtaking speed. It is being increasingly recognized as an important component of global health. Recent studies estimate that some 18% of the total burden of disease is surgical and that 1.4 million deaths could be averted annually by basic essential surgery.[1] At least 2 billion people lack access to essential surgery.[2] Of the roughly 250 million operations performed each year, only 3.5% are performed on the poorest third of the world's population.[3] Bickler et al[1] estimated that at least 77.2 million disability-adjusted life years could be averted annually by the provision of essential, life-saving surgery. In my opinion, without the provision of affordable, accessible essential surgical services in low- and middle-income countries (LMICs), the lofty goals of the Global Health 2035 report by the *Lancet* Commission on Investing in Health,[4] which postulated that a grand convergence in health is achievable in our lifetime, will not be possible. What needs to be done? Before I try to answer this question, I will describe recent developments in global surgery to give context to the discussion.

Recent Developments in Global Surgery

A defining moment occurred when, in 2006, the World Bank published the second edition of the influential book *Disease Control Priorities in Developing Countries*.[5] A chapter was included on surgery, which, for the first time, gave an estimate of the global burden of surgical disease as 11% of the total global burden of all diseases. The chapter also shattered the myth that surgery is always expensive. Interest in essential surgery began to grow rapidly, and in succession the Bellagio Essential Surgery Group (2007), the Burden of Surgical Disease and Access Working Group, and the Alliance for Surgery and Anesthesia Presence (2010) were created. Meanwhile, important contributions to the development of academic global surgery have been made by the Association for Academic Surgery and the Society of University Surgeons. The efforts of these 2 organizations have not only contributed to making global surgery and global health research relevant in surgical education but also contributed to the great interest in global health that is evident in students and residents.

The *Essential Surgery* volume of the third edition of *Disease Control Priorities* as well as its key messages for the *Lancet* have recently been published.[6] The *Lancet* Commission on Global Surgery report, a landmark contribution, has also been published.[7] The release of both of these publications will likely have significant influence on funders and policy makers.

Interest in global surgery is growing within US academic institutions. A number of departments of surgery are developing programs in global surgery, driven by student, resident, and faculty demand and by recruitment competition for the best students and residents. Some of the more mature global surgery centers include those at Duke University, Emory University, Harvard University, the University of California, San Francisco, the University of Utah, and the University of Washington.

The Future of Global Surgery

Global surgery is not a fad but an important field in global health and an indispensable component of the structure of any global health system. The field is in its infancy and has grown organically and in an uncoordinated way. This is therefore an opportune time for serious discussion about the future development of global surgery as a worldwide initiative.

My recommendation for how global surgery should grow within the United States is based on the belief that success will depend on an integrated approach driven jointly by US academic institutions and American surgical associations and organizations, including the American College of Surgeons, American Surgical Association, Society of University Surgeons, Association for Academic Surgery, and Alliance for Surgery and Anesthesia Presence. Because global surgery is a multidisciplinary initiative, invitations should be extended to the American Society of Anesthesiologists, the American Nurses Association, and potentially other multidisciplinary societies, as deemed appropriate. Early steps that would be necessary include the following:

1. A planning conference should be held under the auspices of one of the organizations, preferably the American College of Surgeons, of the relevant stakeholders. The outcome should be the formation of a Consortium for Global Surgery with representatives from the stakeholder organizations as well as students and residents.
2. Once formed, the Consortium for Global Surgery should develop a strategy for its financial sustainability, which will require support from membership organizations, governments, foundations, and other global donors. Its second goal would be to develop working groups in governance and organization, education and training, and the clinical implementation of trauma and essential surgery services as well as research in LMICs. The initial function of the working groups would be as follows:

Corresponding Author: Haile T. Debas, MD, Global Health Sciences, University of California, San Francisco, 550 16th St, Third Floor, PO Box 1224, San Francisco, CA 94158 (haile.debas@ucsf.edu).

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Interest of Pediatric Surgeons

Journal of Pediatric Surgery (2011) 46, 2244–2249

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Journal of Pediatric Surgery

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Interest in international surgical volunteerism: results of a survey of members of the American Pediatric Surgical Association

Marilyn W. Butler [a,*], Sanjay Krishnaswami [b], David H. Rothstein [c], Robert A. Cusick [d]

[a]*Division of Pediatric Surgery, Stanford University, Stanford, CA, USA*
[b]*Oregon Health and Sciences University, Portland, OR, USA*
[c]*Children's Memorial Hospital, Chicago, IL, USA*
[d]*University of Nebraska, Omaha, NB, USA*

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- Previous international work: 48%
- Interested: 95%
- Operating with and teaching local surgeons: 83%

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Pediatric Surgical Exchange

MCH-Kijabe

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Chez nous

MCH EMPLOYEE NEWSLETTER March 11, 2010

News

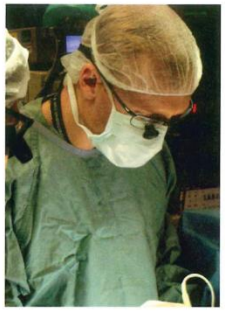
MCH Surgical Fellow heads to Kenya

By Lisa Dutton

In March, when many head south for spring break, Dr. Robert Baird will also board an airplane, but he won't be heading to a fancy beachfront resort; he'll be heading to Kijabe, Kenya for a month. He won't get much R & R either, but he will get a lot of O.R.... time that is.

Dr. Baird is the MCH's Pediatric Surgical Chief Fellow. Part of his two-year fellowship curriculum includes the option of completing a four-week stint in the BethanyKids Pediatric Surgery Unit of Kijabe Hospital under the supervision of Canadian surgeon and missionary Dr. Dan Poenaru. This opportunity is unique to the MCH. It was the vision of Dr. Sherif Emil, Director of the Division of Pediatric General Surgery, who wanted to make the MCH program unique among the 40 training programs in North America, by incorporating 3rd world training into its fellowship.

Far from viewing this training as a burden, Dr. Baird says he is looking forward to the opportunity which will take him outside his comfort zone. "I expect to learn a lot. It will be one heck of a culture shock. I'll see a different way of doing surgery under extremely difficult conditions," he says.



The type of surgeries will be in some ways similar, in other ways very dissimilar, to the work Dr. Baird is doing at the MCH. He'll be assisting Dr. Poenaru during surgeries to correct congenital abnormalities such as anorectal malformations, congenital diaphragmatic hernia and esophageal atresia. There will also be surgery on children with solid cancerous tumours. However, he will be working in an environment of severely restricted resources, one where children often present with very advanced stages of their disease. He will also perform many procedures, such as urologic and neurosurgical operations, not traditionally performed by a pediatric surgical trainee in North America.

"I expect the big difference to be the resources at our disposal such as supplies and equipment. While the diseases we treat will be the same, the approach to care will be very different," he says.

Another major difference between the two countries is that Canada has a universal health care system while Kenya does not. Dr. Baird points out that in Canada, if a parent notices a small change in their child's health, they will likely seek a medical opinion. Thus diseases and health problems are diagnosed early when they are highly treatable. In Kenya, however, Dr. Baird says patients are likely to seek medical advice much later when the diseases have had a chance to advance. And many have great difficulty getting any medical care.

It actually isn't easy for a pediatric surgical fellow to leave for a month. His absence will not only have an impact on the hospital but it will also have a major impact on his family. His wife Naomi, also a physician, and their two young children, Sean and Caitlyn, will head out to Vancouver for the month where she has family.

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MCH-Kijabe Exchange

Objectives

- Exposure to pediatric surgical pathology rare or absent in high-income countries.
- Experience in patient care in a low resource setting
- Appreciation of the challenges confronting pediatric surgeons in low resource settings.
- An understanding of global health issues pertaining to pediatric surgery.
- An appreciation for whole person care in a low resource setting.
- Appreciation of the principles of evidence-based care in any environment.

Program Infrastructure

- Provision of educational rationale.
- Supervision by ABS or Royal College certified pediatric surgeon.
- Involvement in the entire spectrum of care.
- A clear evaluation process.
- Coverage of all housing and travel costs.
- Addressing security concerns.

Fall 2010

Program Evaluation

Partnership through Fellowship:

The Bethany Kids – McGill University Pediatric Surgery Fellowship Exchange

Michael Ganey[1], Robert Baird[1], Dan Poenaru[2], Sherif Emil[1]
[1]Division of Pediatric Surgery, The Montreal Children's Hospital, McGill University, Montreal, Quebec, Canada
[2]Division of Pediatric Surgery, Bethany Kids Kijabe Hospital, Kenya

Objective

- A recent surge in surgical volunteerism has led to various experiences in global surgery.
- Exposure to diverse settings and pathologies is inherently beneficial, but must happen in formalized, monitored environments.
- We report our initial experience with a unique pediatric surgery fellowship exchange.

Methods

- Pediatric Surgery fellows spend 4-6 weeks at the partner institution
- The exchange is accredited by the College of Surgeons of East, Central and Southern Africa and the Royal College of Physicians and Surgeons of Canada
- Bethany Kids (BK) fellows participate in an annual scientific meeting
- McGill fellows participate in a surgical outreach mission
- Operative case logs and new pathology/management are reviewed
- Surveys are administered to each fellow and faculty member involved in the exchange

The Montreal Children's Hospital

Freestanding Children's Hospital Founded 1904
144 beds
PICU = 12 bed
NICU = 24 bed
Language: English, French, >60 translators

Bethany Kids at Kijabe Hospital

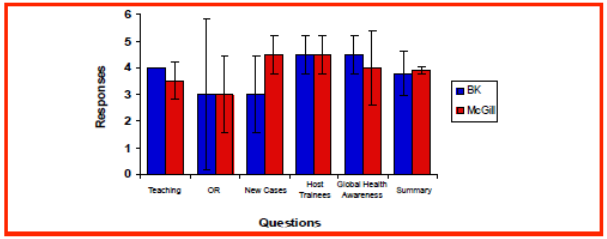
Adult Hospital founded 1915
Pediatric Wing founded 2001
36 beds
PICU = 1 -2 beds
NICU = 16
Language: English, Kiswahili, Somali, Various tribal languages

Results

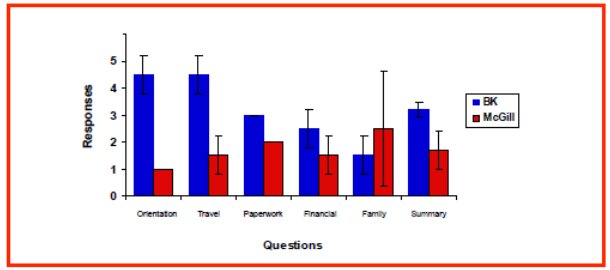
- 4 fellows participated in the exchange, 2 from each institution
- All successfully completed the exchange
- Procedures were similar in number between sites
  - Mean at BK 67, McGill 81
- Procedures were significantly different in pathology and management
  - Novel exposures at BK 61%, McGill 55%

- An unequal training opportunity initially resulted from BK fellows being granted only observer status. This has been resolved, and subsequent fellows will enjoy equal opportunities in patient care, including operative participation

Results – Value for Fellows (1-low, 6-high)



Results – Challenge for Fellows (1-low, 6-high)



Results – Faculty (1-low, 6-high)

- Value
  - All faculty rated high – 4.3 (mean)
  - BK and McGill similar – 3.9 vs. 4.5
- Challenge
  - All faculty rated low – 2.4 (mean)
  - BK and McGill similar – 2.2 vs. 2.4

Results – Qualitative

- Overall, the exchange was rated positively by fellows and faculty
  - Expectations met – all
  - Worth time and effort – all
  - Recommend to another trainee/faculty/institution – all
- New knowledge for fellows:
  - BK – minimally invasive and neonatal surgery
  - McGill – urology, neurosurgery and plastic surgery

Conclusions

- Our fellowship exchange program is the first of its kind in pediatric surgery.
- It appears to be beneficial both to trainees and to participating programs by increasing exposure to pathology and management strategies rarely experienced at their home institution.
- The resulting long-term partnership is an example of intentional training in cross-cultural surgical care delivery, providing effective preparation for tomorrow's global surgeons.

Sponsors of the Exchange

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Program Evaluation

Journal of Pediatric Surgery 51 (2016) 1704–1710

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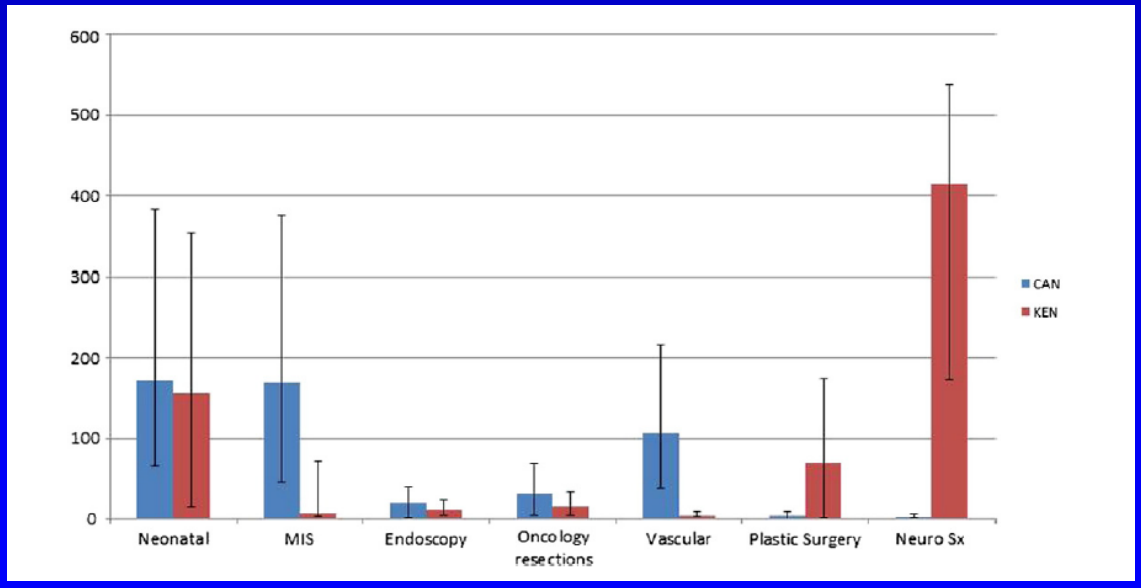
Journal of Pediatric Surgery

journal homepage: www.elsevier.com/locate/jpedsurg

Partnership in fellowship: Comparative analysis of pediatric surgical training and evaluation of a fellow exchange between Canada and Kenya☆

Robert Baird [a], Dan Poenaru [a,c], Michael Ganey [b], Erik Hansen [d,e], Sherif Emil [a,*]

- Evaluated in 2015
  - 5 MCH fellows
  - 5 Kijabe fellows



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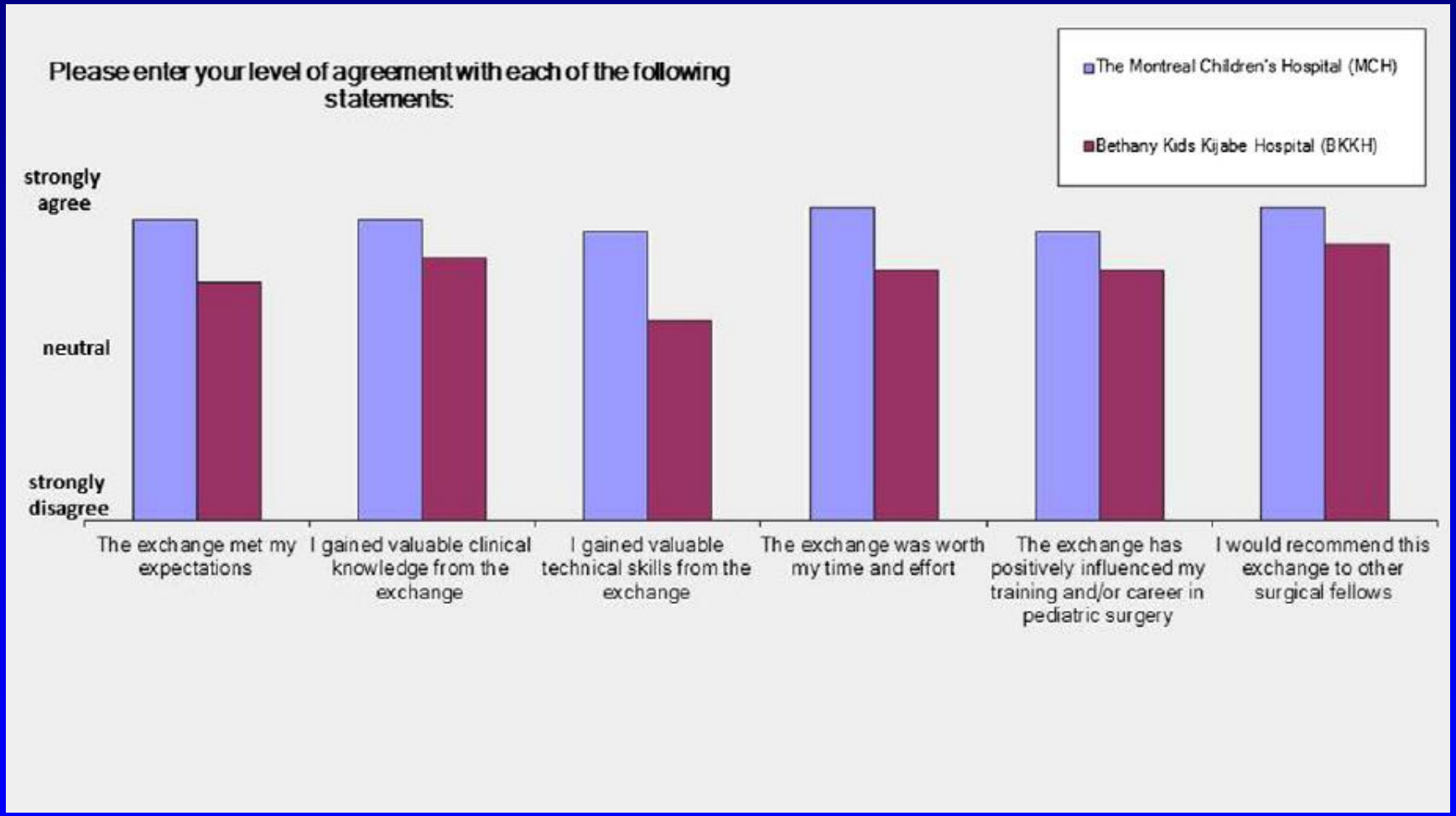
Educational Value



Burden

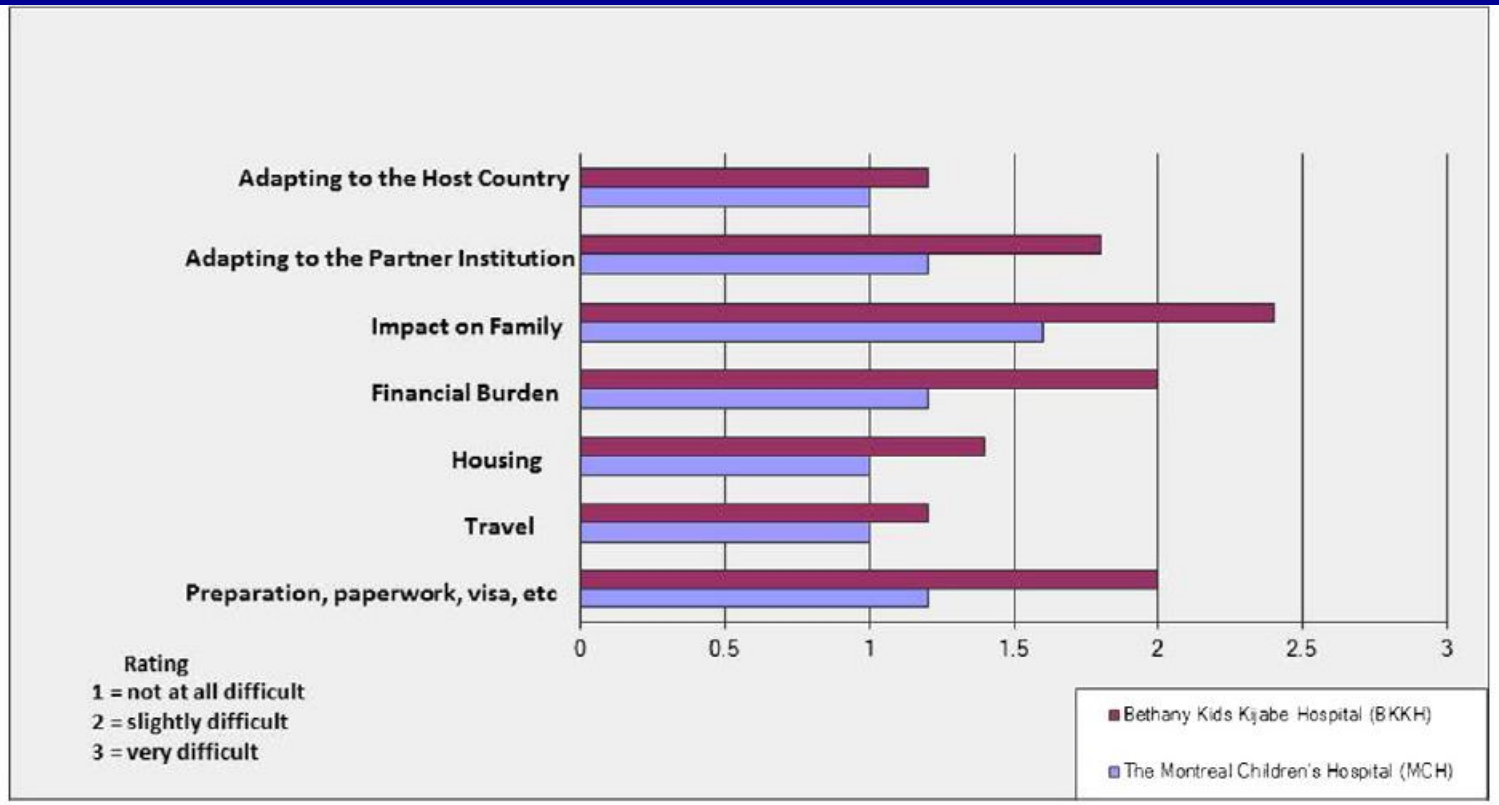


Fig. 4. Perceived challenges during the fellowship exchange by MCH (n = 5) and BKKH (n = 5) trainees.

Program Refinement

- Clinical privileges for Kijabe fellow.
- Exchanging fellows or hosting Kijabe fellow when junior fellow is off service.
- Permanent funding.
- Attendance at North American pediatric surgery meeting.
- Continued collaborations.

Relationships Beget Relationships

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But…

Journal of Pediatric Surgery 52 (2017) 2088–2090

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Special Communications

Let our fellows go: a plea for allowing global surgery electives during pediatric surgical training

Sherif Emil [a,*], James O'Neill [b,c], Dan Poenaru [a]

[a] Department of Pediatric Surgery, The Montreal Children's Hospital, McGill University Health Centre; Montreal, Quebec
[b] Department of Pediatric Surgery, Vanderbilt University Medical Center, Nashville, TN
[c] Bethany Kids Children's Hospital at AIC Kijabe Hospital, Kijabe, Kenya

ARTICLE INFO

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Global pediatric surgery
Training
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ABSTRACT

In the last 2 years, a coalescence of forces has brought the needs of surgical patients in low resource settings to the top of the international healthcare policy agenda. This same dynamic has propelled academic global surgery, and particularly education, to the forefront. The proportion of surgical trainees seeking global surgical experiences, and interested in incorporating global surgery into their clinical and academic career, has risen sharply. International surgical electives are now allowed in a number of surgical residency programs, if they meet strict criteria. However, the Accreditation Council for Graduate Medical Education (ACGME) currently does not allow international electives during pediatric surgical training. This decision has not been contested by the American Board of Surgery (ABS) or the Association of Pediatric Surgery Training Program Directors (APSTPD). Valid concerns exist regarding international pediatric surgical electives. In this article, the authors address these concerns and exhort the APSTPD, the ABS, and the ACGME to re-examine their position on the value of pediatric global surgery electives.
Level of evidence: 5.

Addressing the ABS/ACGME Concerns

- Pediatric surgical training is too short.
- The elective may represent a poorly supervised “surgical adventure”.
- The pediatric surgical fellow will not receive adequate follow-up on cases.
- Programs may use international rotations to boost their numbers.
- An international pediatric surgical experience can be delayed until completion of training.

Overwhelming Response

Journal of Pediatric Surgery 53 (2018) 1259–1260

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Journal of Pediatric Surgery

journal homepage: www.elsevier.com/locate/jpedsurg

An appeal from fellows☆

To the Editor:

Debate regarding the optimal training curricula for fellows in pediatric surgery continues. One particular topic that gained the spotlight in the December 2017 edition of the Journal of Pediatric Surgery is the role of international electives in pediatric surgery fellowship training [1,2]. Emil, et al., make a salient and passionate argument for allowing international electives during fellowship, while Dr. Tracy argues against any elective that would infringe on an already limited training period for pediatric surgery fellowship. Both articles raise important points regarding the training of pediatric surgeons and the future of the pediatric surgery workforce, particularly as related to global health. As we, current senior fellows in pediatric surgery, represent this future workforce, we wish to add our voices to the discussion.

were the primary concern, any program not adequately providing case volumes at their home institution could easily be excluded from offering an international elective. Rather than making up for inadequate case volumes domestically, these electives instead allow for invaluable learning and experience in contributing to the health of children worldwide. These experiences teach pediatric surgery trainees the provision of surgical care to children in very different settings, settings where cultural and language barriers abound, resources are scarce, and difficult ethical issues and decisions must be faced. Instead of replacing inadequate training, therefore, these electives supplement our training here at home with meaningful lessons that will not only motivate future international work but also prepare us to do it well. While not all fellows who participate will pursue global surgery long term, "intangibles" such as culturally respectful engagement and innovation are among lessons

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journal homepage: www.elsevier.com/locate/jpedsurg

Correspondence

Global experiences in fellowship training: A valuable opportunity to match competencies with contemporary priorities and needs

I read with great interest the recent thoughtful perspectives on global experiences during pediatric surgery fellowship [1,2]. Fifteen years ago, as a general surgery trainee interested in global experiences, I heard the same concerns. Through a stepwise approach, we documented bilateral benefits of global partnerships and exchange, from conception to five-year evaluation [3,4]. We showed that an international elective provided unique value-added to ABS-RRC competencies, and other programs reported similar results. We conducted one of several national program surveys confirming similar interest, and the ABS-RRC soon thereafter established a clear set of criteria for electives [5]. Thirty-four programs now offer electives, with the number rapidly growing [6,7].

Our fellows have worked side by side with local counterparts who have in turn visited our institution, strengthening these relationships. The direct trainee experience of global disparities at the bedside in Africa or elsewhere, and its obvious contrast to the environment here, ignites an urgency for action [15]. At home, our didactic conferences and clinical problem-solving sessions include burden and approaches in resource-limited areas. All of our graduates have continued global engagement as faculty, based partly on their exposure during fellowship. Now they are in turn inspiring future generations of trainees.

The new APSA strategic plan and "rebranding" prioritize leadership in reducing global surgical disparities. Meanwhile, an increasing number of our training programs have faculty with established global relationships, presenting a valuable learning opportunity for our trainees

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Regarding global pediatric surgery training opportunities

The December 2017 issue of the *Journal or Pediatric Surgery* featured two important special communications regarding the appropriateness of global pediatric surgical electives during fellowship training. Emil et al. contextualize our subspecialty within the growing field of global surgery and articulate many of the concerns expressed by both the Association of Pediatric Surgery Training Program Directors (APSTPD) and the Pediatric Surgery Board (PSB) of the American Board of Surgery (ABS) [1]. Their responses to these concerns are reasoned and evidence-based, and they elegantly express the moral argument in favor of exposing trainees to the complexities of providing health care in low- and middle-income environments.

fundamental questions of physiology and treatment paradigms outside of their comfort zone (No oscillator — what are the alternatives?) and may help better contextualize the complexities and available options at their home institution. Our trainees are mature, accomplished and highly motivated individuals without exception. Surely they can be granted enough autonomy to tailor their training and prepare for their desired future career within the parameters of the existing curriculum.

Variability:

Indeed, the prospect of participating in international electives exposes the trainee to an experience that may be unpredictable. Some trainees would prefer to avoid this uncertainty and should always

Robert Baird
Department of Pediatric General and Thoracic Surgery, British Columbia Children's Hospital, University of British Columbia, 4480 Oak, British Columbia, Vancouver V6H3V4, Canada
Corresponding author.
E-mail address: robert.baird@cw.bc.ca

Kartik Pandya
Tuft's University, Maine Medical Center, Portland, ME

Dave R. Lal
Division of Pediatric Surgery, Children's Hospital of Wisconsin, Milwaukee, WI

Casey M. Calkins
Children's Hospital of Wisconsin, Milwaukee, WI

Keith T. Oldham
Children's Hospital of Wisconsin, Milwaukee, WI

Anthony Tsai
Penn State Hershey Medical Center, Hershey, PA

Bindi Naik-Mathuria
Division of Pediatric Surgery, Baylor College of Medicine, Texas Children's Hospital, Houston, TX

Etienne St-Louis
Division of Pediatric General and Thoracic Surgery, Montreal Children's Hospital, McGill University, Montreal, Canada

Malemo Kalisya Luc
Division of Pediatric General and Thoracic Surgery, Montreal Children's Hospital, McGill University
HEAL Africa Hospital, Goma, D.R., Congo

Kathryn LaRusso
Division of Pediatric General and Thoracic Surgery, Montreal Children's Hospital, McGill University, Montreal, Canada

Robin Petroze
Division of Pediatric General and Thoracic Surgery, Montreal Children's Hospital, McGill University, Montreal, Canada

Katrine M. Lofberg
Phoenix Children's Hospital, Phoenix, AZ

C. Katarina Biller
CKB Pediatric Surgery, St. Luke's Children's Hospital, Boise, ID

Gustavo A. Villalona
SSM Heath Cardinal Glennon Children's Hospital, Saint Louis University, St. Louis, MO

David M. Gourlay
Children's Hospital of Wisconsin, Milwaukee, WI

Michael Klein
Wayne State University, Children's Hospital of Michigan, Detroit, MI

Daniel DeUgarte
Division of Pediatric Surgery, UCLA and Harbor-UCLA, Los Angeles, CA

Muriel Cleary
University of Massachusetts Medical School, UMass Memorial Medical Center, Worcester, MA

Elizabeth A. Berdan
Mary Bridge Children's Hospital, Tacoma, WA

Sabina Siddiqui
Children's Hospital of Wisconsin, Medical College of Wisconsin Milwaukee, WI

Andrea Lo
University of Calgary, Calgary, Alberta, Canada

Monica Langer
Loyola University Medical Center, Maywood, IL

Damain Duffy
Office of Pediatric Surgical Evaluation and Innovation, BC Children's Hospital, Vancouver, BC, Canada

Geoffrey Blair
Division of Pediatric Surgery, BC Children's Hospital, Vancouver, BC, Canada

Alan Beres
Division of Pediatric Surgery, UT Southwestern Medical Center, Dallas, TX

Jean-Martin Laberge
Montreal Children's Hospital, McGill University Health Center, Montreal, Canada

Elizabeth A. Berdan
Mary Bridge Children's Hospital, Tacoma, WA

Andrei Radulescu
University of Alabama, Birmingham, AL

AiXuan Holterman
U of Illinois College of Medicine, Peoria, IL

J. David Hoover
WakeMed Health, East Raleigh NC

Tamara Fitzgerald
Duke University School of Medicine, Durham, NC

Michael Ganey
Loma Linda University School of Medicine, Tenwek Hospital, Bomet, Kenya

Sanjay Krishnaswami
Division of Pediatric Surgery, Oregon Health and Science University Portland, OR

Doruk Ozgediz
Yale Institute for Global Health, Yale University, New Haven, CT

https://doi.org/10.1016/j.jpedsurg.2018.03.003

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Training Partnerships

REVIEW • REVUE

North–South surgical training partnerships: a systematic review

Tim Greive-Price MD
Hardee Mistry
Robert Baird, MDCM

Accepted Jan. 7, 2020

Correspondence to:
Robert Baird
Division of Pediatric General and Thoracic Surgery
ACB Rm K0-134
BC Children's Hospital
4480 Oak St
Vancouver BC V6H 3V4
robert.baird@cw.bc.ca

DOI: 10.1503/cjs.008219

Background: Fostering the success of surgical trainees from low- and middle-income countries (LMICs) plausibly addresses the existing workforce deficit in a sustainable manner, but it is unclear whether and how these trainees are targeted as strategic learners for educational exchanges. The purpose of this review was to assess the quality and outcomes of existing literature on exchanges of surgical trainees between high-income countries (HICs) and LMICs.

Methods: We conducted a systematic review of reported instances of surgical training exchanges between HICs and LMICs. After database searching, 2 independent reviewers evaluated titles, abstracts and manuscripts. Selected studies were critically appraised with the use the Critical Assessment Skills Programme Qualitative Checklist and analyzed for trainee level, institutions, countries and subspecialties, as well as reported outcomes of the exchange.

Results: Twenty-eight reports met the inclusion criteria and were analyzed. Most publications (18 [64%]) detailed North-to-South exchanges; 1 exchange was bidirectional. General surgery was the most common discipline identified, with 9 other subspecialties described involving learners at all phases of training. Reports were generally of good quality, although outcomes were reported variably, and most authors failed to acknowledge the ethical implications of their study.

Conclusion: The articles identified described a variety of surgical exchanges across disciplines, learner types and host/home countries. Few of the exchanges prioritized the learning of surgical trainees from LMICs. There is an increasing need to formalize these exchanges via clear goals and objectives, as well as to prioritize the proper matching of educational goals with local clinical needs.

Level of evidence: V – Evidence from systematic reviews of descriptive and qualitative studies.

Health Policy and Planning, 35, 2020, 1385–1412
doi: 10.1093/heapol/czaa075
Advance Access Publication Date: 7 November 2020
Review

OXFORD

Capacity-building partnerships for surgical post-graduate training in low- and middle-income countries: a scoping review of the literature with exploratory thematic synthesis

Miranda Voss[1,*], Oostewalt Swart[2], Lucy Abel[3] and Kamal Mahtani[3]

[1]Harris Manchester College, Savile Road Oxford, Oxford OX1 3TZ, UK
[2]Department of Surgery, Worcester Hospital, Murray Street, Worcester 6840, South Africa
[3]Nuffield Department of Primary Healthcare Sciences, Radcliffe Observatory Quarter, Woodstock Road, Oxford OX2 6GG, UK

*Corresponding author. Harris Manchester College, Savile Road Oxford, Oxford OX1 3TZ, UK. E-mail: mvoss@midkaroo.co.za

Accepted on 25 June 2020

Abstract

In recent years, international surgical programmes have moved away from vertical service delivery and towards collaborative, capacity-building partnerships. The aim of this review was to provide a map of the current literature on international surgical training partnerships together with an exploration of factors influencing their implementation. Three bibliographic databases were searched for peer-reviewed reports of surgical training partnerships between organizations in high- and low or middle-income countries to July 2018. Reports were sorted in an iterative fashion into groups of similar programmes, and data were extracted to record the intervention strategies, context, financing, reported results and themes around implementation. Eighty-six reports were grouped into five types of programme: full residency training, bi-institutional twinning partnerships, diagonal/sub-specialist programmes, focused interventions or courses and programmes using remote support. Few articles were written from the perspective of the low-middle income partner. Full residency programmes and some diagonal/sub-specialist programmes report numbers trained while twinning partnerships and focused interventions tend to focus on process, partners' reactions to the programme and learning metrics. Two thematic networks emerged from the thematic synthesis. The first made explicit the mechanisms by which partnerships are expected to contribute to improved access to surgical care and a second identified the importance of in-country leadership in determining programme results. Training partnerships are assumed to improve access to surgical care by a number of routes. A candidate programme theory is proposed together with some more focused theories that could inform future research. Supporting the development of the surgical leadership in low- and middle-income countries is key.

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Working & Learning Together

Journal of Pediatric Surgery 49 (2014) 786–790

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journal homepage: www.elsevier.com/locate/jpedsurg

Pediatric surgical camps as one model of global surgical partnership: A Way Forward

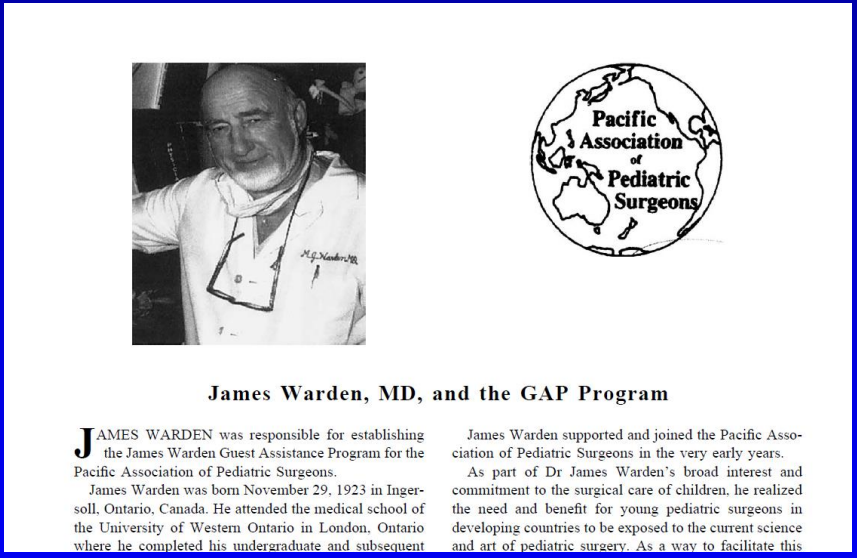
Geoffrey K. Blair [a,*], Damian Duffy [a], Doreen Birabwa-Male [b], John Sekabira [b], Eleanor Reimer [c], Martin Koyle [d], Guy R. Hudson [e], Jennifer Stanger [a], Monica Langer [a], Gareth Eeson [a], Heng Gan [c], Sean McLean [c], Nikki Kanaroglou [d], Phyllis Kisa [b], Nasser Kakembo [b], Katherine Lidstone [f]

[a] Division of Pediatric Surgery, University of British Columbia, Vancouver, Canada
[b] Department of Surgery, Makerere University, Kampala, Uganda
[c] Department of Anesthesia, University of British Columbia, Vancouver, Canada
[d] Division of Urology, Hospital for Sick Children, Toronto, Canada
[e] Swedish Medical Center, Seattle, USA
[f] British Columbia Children's Hospital, Vancouver, Canada

	Service	Education	Collaboration
2008	Hernia repairs, 350 children	2 Canadian trainees, 5 Ugandan trainees, Informal teaching sessions 1 lecture	Relationship-building, Understanding Ugandan healthcare system, Agreement on future camps
2011	Hernia repairs + complex cases, 220 children	3 Canadian trainees, 7 Ugandan trainees, Numerous medical students (2 European, many Ugandan) Tutorials	2 research projects completed Agreement on a future camp
2013	Complex pediatric surgery and urology cases, 107 children	5 Canadian trainees, 8 Ugandan trainees, Daily lectures/formal rounds Tumour board participation	1 educational research study completed 1 joint research proposal drafted, Proposal for Ugandan–Canadian training alliance, 2014 Rural Uganda PSC planned

Visiting Scholars
PAPS Warden Program

Dr. Cynthia Reyes



Pacific Association of Pediatric Surgeons

James Warden, MD, and the GAP Program

JAMES WARDEN was responsible for establishing the James Warden Guest Assistance Program for the Pacific Association of Pediatric Surgeons.

James Warden was born November 29, 1923 in Ingersoll, Ontario, Canada. He attended the medical school of the University of Western Ontario in London, Ontario where he completed his undergraduate and subsequent

James Warden supported and joined the Pacific Association of Pediatric Surgeons in the very early years.

As part of Dr James Warden's broad interest and commitment to the surgical care of children, he realized the need and benefit for young pediatric surgeons in developing countries to be exposed to the current science and art of pediatric surgery. As a way to facilitate this

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Visiting Scholar Programs

Pediatric Orthopedic Society of North America Experience

- 86% consulted POSNA member on care-related issue.
- 52% organized a POSNA member's visit to their country.
- 13% became POSNA members.

- Knowledge Sharing
  - Lectures 73%
  - Surgical skills 63%
  - Mentorship 59%
  - Local courses 42%
  - Research 14%

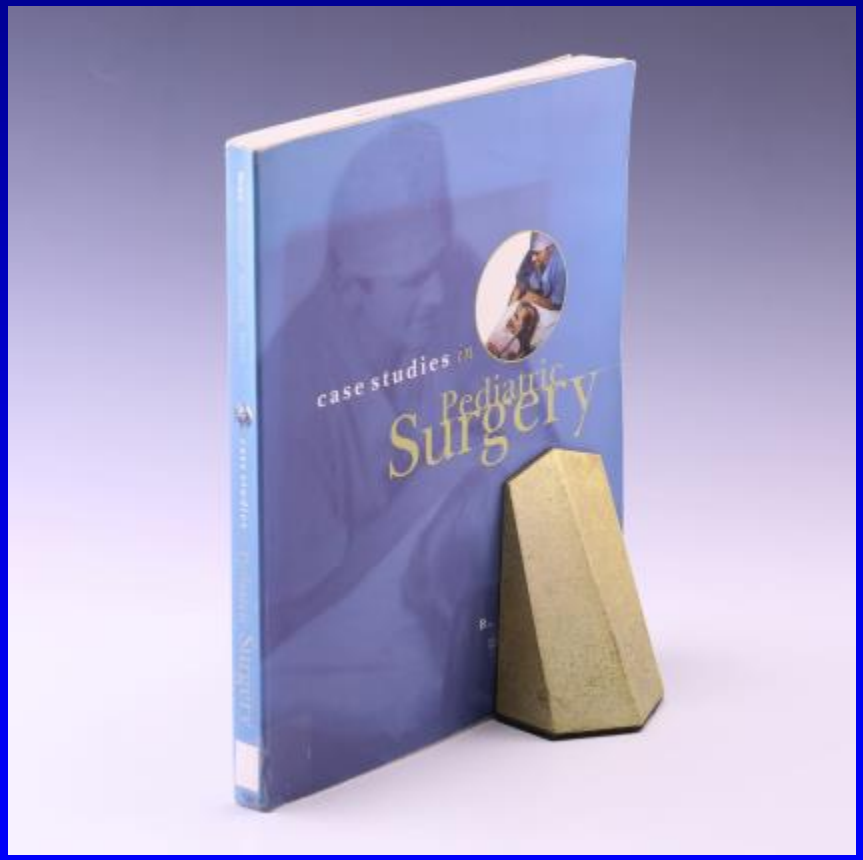
Hefferman MJ, et al. Assessing the impact of the Pediatric Orthopedic Society of North America (POSNA) visiting scholar program. J Pediatr Othop 41:197-201,2021.

CAPS Global Scholar Program

A Big Idea

- Fall 2013
  - E-mail from Taylor & Francis asking pediatric surgeons if they have ideas for a book.
- Can I write a book?
- What will it add?

Case-Based Pediatric Surgery



The ***practice*** of pediatric surgery

vs.

The ***science*** of pediatric surgery

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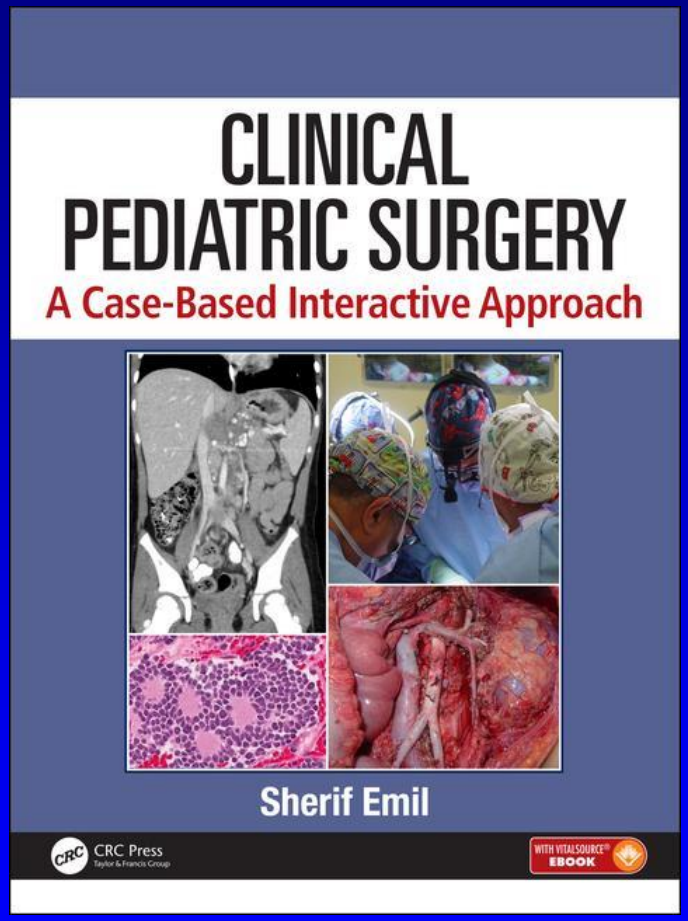
The Proposal

- Disease-based chapters.
- Starts with an interactive case.
- Modeled after our surgery-radiology-pathology weekly conference.
- Discussion completes review of entire subject through presentation of more cases.

Clinical Pediatric Surgery



How to Share This Knowledge

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Frank M. Guttman Visiting Professor 2018

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Web-based Education

Education Without Borders

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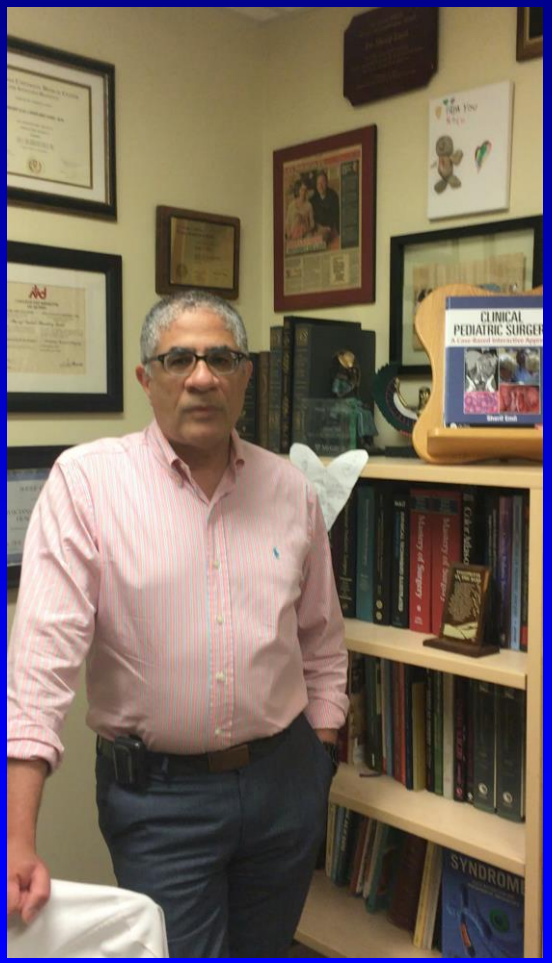
Information Deficit

- Surgeons and trainees in LMIC's cannot afford the price of surgical textbooks.
- Often resort to using pirated copies.
- On-line journal access is also rare.
- Global comprehensive information deficit.

#CBCLIPS

Case Based Clinical Learning in Pediatric Surgery



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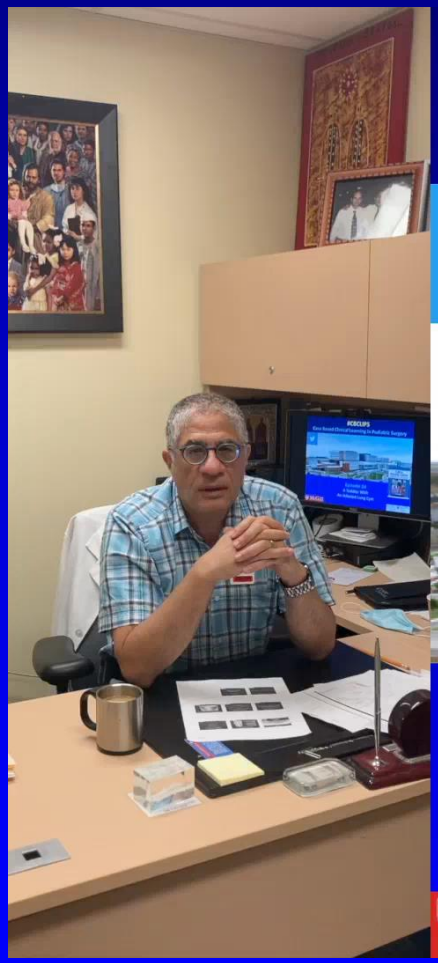
#CBCLIPS
Episode 24

#CBCLIPS Commentary

Episode 24



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Case Based Clinical Learning in Pediatric Surgery

Episode 24

A Toddler With

An Infected Lung Cyst

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Global Outreach

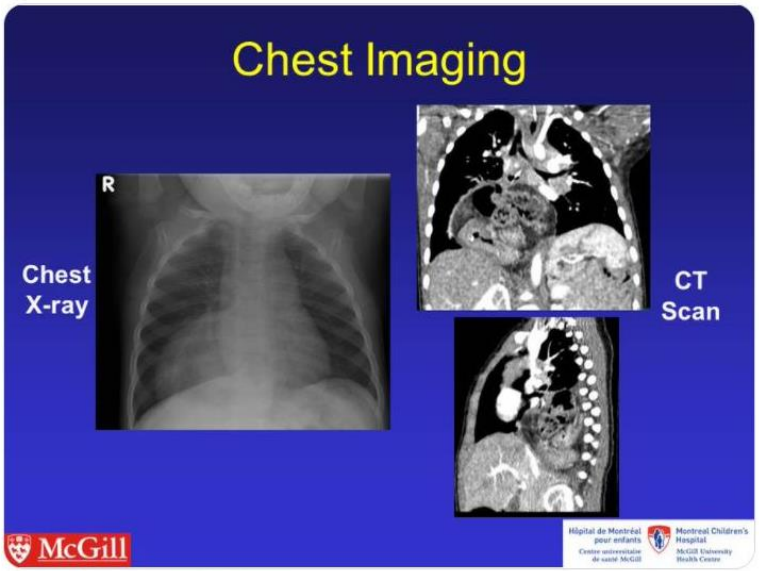
First Episode

#CBCLIPS Episode 28

Monday, October 4

← **Tweet**

A 2-year old girl is sent for a chest x-ray by her day care after suspicion of swallowing a small toy. The x-ray and subsequent CT scan are shown. She has poor appetite and her weight is at the 10th percentile. No other symptoms and normal exam. What next?



APSA Surgeons and 9 others

2:30 PM · Oct 4, 2021 · Twitter Web App

Most Recent Episode

Tweet Analytics

Sherif Emil MD,CM, FACS,FRCSC,FAAP @DrSherifEmil
#CBCLIPS Episode 28
A 2-year old girl is sent for a chest x-ray by her day care after suspicion of swallowing a small toy. The x-ray and subsequent CT scan are shown. She has poor appetite and her weight is at the 10th percentile. No other symptoms and normal exam. What next?
pic.twitter.com/5UALiCQgDK

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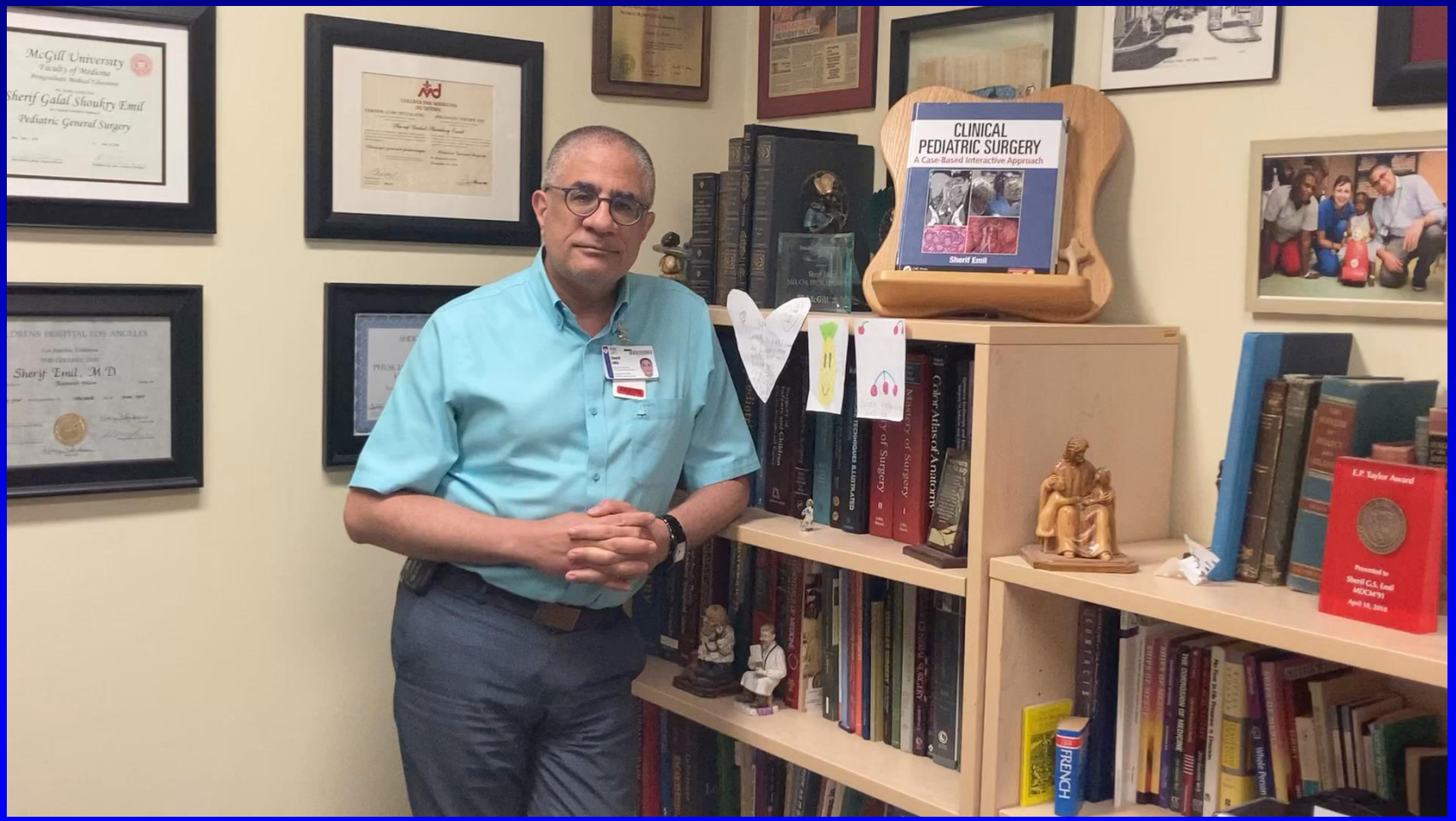
The Next Phase



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Stay Current in Pediatric Surgery

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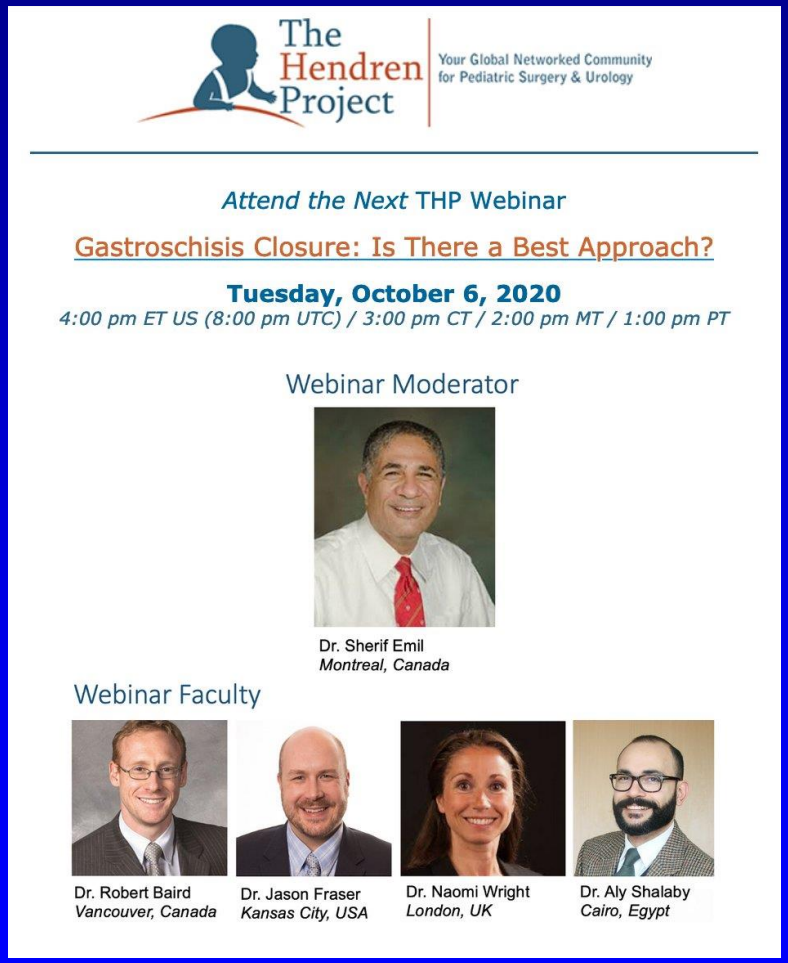
The Hendren Project



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- Logins for Entire Session: 357
- Logins for at Least 60": 385

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The Hendren Project Community

The Hendren Project
Your Global Networked Community for Pediatric Surgery & Urology

JOIN US TOMORROW

Special Webcast

We Will All Learn Together: Globalizing Surgical Education

***Thursday*, October 7, 2021**
7:30 am ET US (11:30 am GMT) / 8:30 am CT / 7:30 am MT / 6:30 am PT

Dr. Sherif Emil
Montreal Children's Hospital

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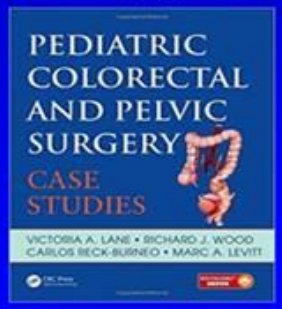
Knowledge Transfer

Knowledge Transfer

Marc Levitt, MD



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Criteria for Book Gifting

1. LMIC as classified by World Bank.
2. Training Setting.
3. Public or university hospital.
4. At least 75% non-private practice.
5. One copy per institution.

Global Partnerships

68 Countries. 250 Institutions


Nigeria

North Macedonia


Armenia

Domin Rep


Indonesia

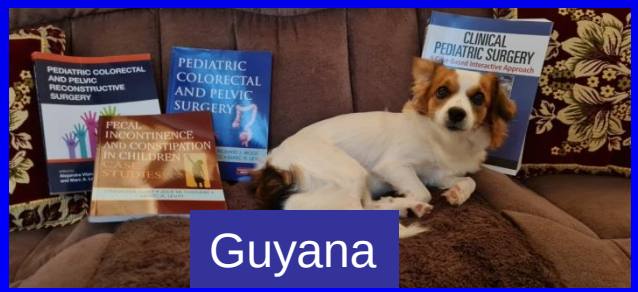

Nicaragua

Philippines

Congo

Vietnam


India



Guyana

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New Educational Partnerships

Dr. Mansur Nasirov
Uzbekistan

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New Educational Partnerships

Professor Milind Chitnis

South Africa

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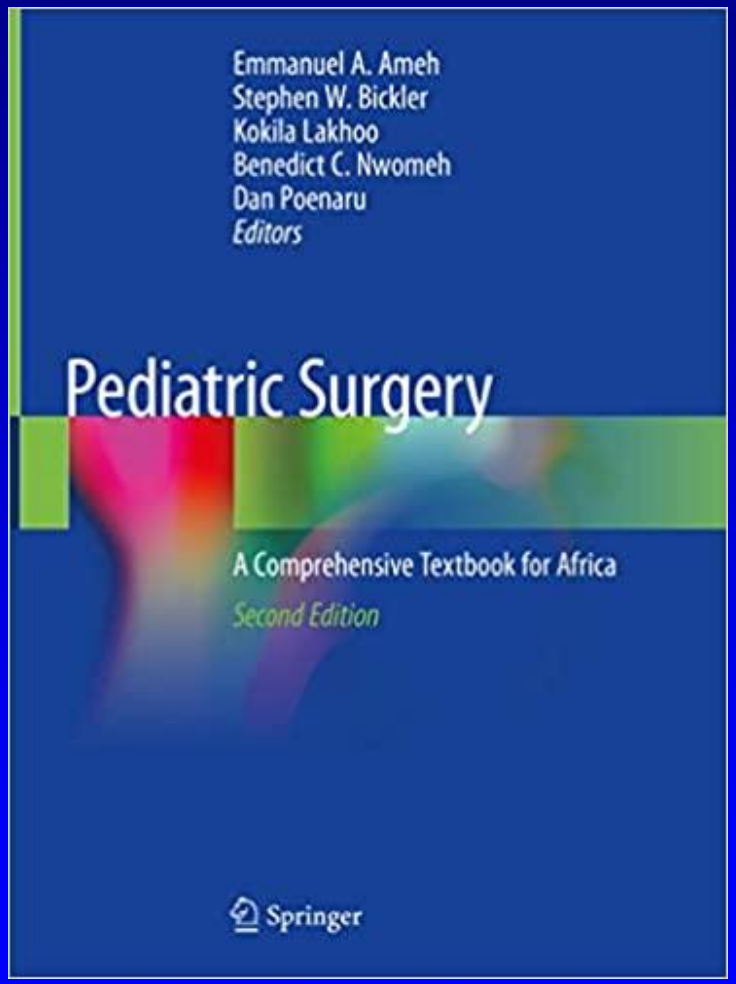
Further Efforts

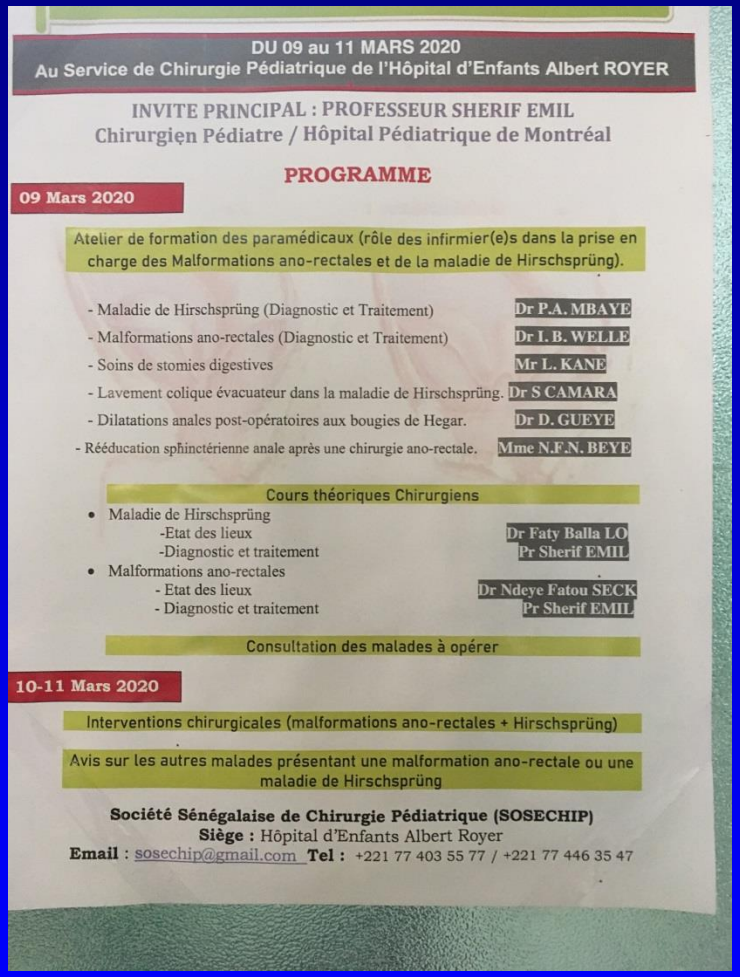
Christa Grant, MD



Introducing Mercy Ships

Mutual Mentoring

Senegal 2020



DU 09 au 11 MARS 2020
Au Service de Chirurgie Pédiatrique de l'Hôpital d'Enfants Albert ROYER

INVITE PRINCIPAL : PROFESSEUR SHERIF EMIL
Chirurgien Pédiatre / Hôpital Pédiatrique de Montréal

PROGRAMME

09 Mars 2020

Atelier de formation des paramédicaux (rôle des infirmier(e)s dans la prise en charge des Malformations ano-rectales et de la maladie de Hirschsprüng).

- Maladie de Hirschsprüng (Diagnostic et Traitement) — Dr P.A. MBAYE
- Malformations ano-rectales (Diagnostic et Traitement) — Dr I. B. WELLE
- Soins de stomies digestives — Mr L. KANE
- Lavement colique évacuateur dans la maladie de Hirschsprüng. — Dr S CAMARA
- Dilatations anales post-opératoires aux bougies de Hegar. — Dr D. GUEYE
- Rééducation sphinctérienne anale après une chirurgie ano-rectale. — Mme N.F.N. BEYE

Cours théoriques Chirurgiens

- Maladie de Hirschsprüng
  - -Etat des lieux
  - -Diagnostic et traitement — Dr Faty Balla LO, Pr Sherif EMIL
- Malformations ano-rectales
  - - Etat des lieux
  - - Diagnostic et traitement — Dr Ndeye Fatou SECK, Pr Sherif EMIL

Consultation des malades à opérer

10-11 Mars 2020

Interventions chirurgicales (malformations ano-rectales + Hirschsprüng)

Avis sur les autres malades présentant une malformation ano-rectale ou une maladie de Hirschsprüng

Société Sénégalaise de Chirurgie Pédiatrique (SOSECHIP)
Siège : Hôpital d'Enfants Albert Royer
Email : sosechip@gmail.com **Tel :** +221 77 403 55 77 / +221 77 446 35 47

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Global Surgical Education

f Physicians and Surgeons... Send Message

Many trainees come to the Africa Mercy with their attending staff. The experience cannot be duplicated in our training environment. They will see late presentations of disease. They will understand the effect of poverty – abject poverty – on health and life. They will learn to manage fragile patients. They will have to make difficult decisions. They will have to function well outside their comfort zone. But most importantly, they will see altruism not just lectured and spoken about, but lived every moment of every day. They will experience the healing power of common purpose and common vision, not just to patients, but also to us who care take of them.

- Dr. Sherif Emil, FRCSC

We'll be posting dispatches from pediatric surgeon, Dr. Sherif Emil, FRCSC & McGill University resident Dr. Étienne St-Louis, MDCM, as they report from Cameroon on their experiences with the humanitarian organization Mercy Ships. #DispatchesfromMercy #FellowStories

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What a Difference 20 Years Make!

Kenyatta National Hospital
Nairobi, Kenya
March 1999

Nous apprendrons tous ensemble!

We will all learn together!

If you want to go fast

Go alone

If you want to go far

Go together

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Merci!

Thank You!