

# Canadian Network for International Surgery

Global Surgery in a Low resource setting:  
Sharing Canadian expertise with the world!

## The problem...The Lancet on Unmet Surgical Need

- ▶ Based on Global incidence of disease, and using western countries (e.g. New Zealand) as a comparator, a vast disparity exists:
- ▶ In Sub-Saharan Africa there are less than 100 surgical procedures per 100,000 population
- ▶ 20,000 per 100,000 in high income areas
- ▶ Minimum needed for safety: 4600 per 100,000
- ▶ The gap is massive and the need is for thousands of care providers

## Obstetrical need is even greater

- ▶ Maternal mortality in Canada: around 8 per 100,000
- ▶ Maternal mortality in Tanzania: 560 per 100,000, down from 850/100,000 ten years ago
- ▶ C-section rate in Canada: over 30%
- ▶ C-section rate in rural Africa: under 1%
- ▶ ?Ideal rate probably 10-15% (hotly disputed!!)

## Who does the surgery?

- ▶ Sometimes specialist surgeons in urban areas
- ▶ Often MDs with some surgical training
- ▶ In many areas, Medical Officers, or Assistant medical officers, who have 2-3 years of training or less
- ▶ Some areas like South Sudan have less than one doctor per 100,000 population, so training alternatively providers is the only solution

## Hence, CNIS

- ▶ Started in 1995 to serve a perceived unmet need by surgeons and nurses
- ▶ First course given was the Essential Surgical Skills course, delivered in Addis Ababa, Ethiopia and Kampala, Uganda in 1995.
- ▶ First grant from CIDA in 1997.
- ▶ Intermittent grants ever since then have allowed expansion in other countries and increased the total number of courses at this point to 11 active courses.
- ▶ Full scale expansion to include obstetrics has been ongoing since 2004

## What we believe (a personal lens)

- ▶ A life in rural Africa is just as important as a life in downtown Vancouver.
- ▶ As Canadians, we are recipients of great privilege, and relatively high standard of living
- ▶ As such, we have a responsibility to share our knowledge with the rest of the world in an attempt to equalize the chance of good outcomes
- ▶ This responsibility arises from our role as global citizens, not a sense of charity or guilt
- ▶ This is especially true in maternity care, where the Maternal Mortality Rate remains vastly different between low and high income countries

## What we do...

### **Create Surgical Courses**

In collaboration with our partners in low income countries, we create tailored courses for their specific needs. Besides basic surgical skills and obstetrics courses, CNIS has a trauma team course, perioperative nurse course, burn management, hernia repair, and a traumatic brain and spinal injury course

### **Train Domestically**

We train Canadian surgeons, obstetricians and nurses here at home, giving them the tools to teach abroad

### **Transfer Skills**

Our Canadian professionals then travel to areas where they transfer their skills to local healthcare students. As a result, lifesaving surgeries are performed

## Over the past 22 years, CNIS has successfully achieved:

- ▶ 12 customized courses created specific to the needs of healthcare personnel in low income countries
- ▶ 150 Canadian medical professionals trained to teach these courses
- ▶ 760 Africans trained as course instructors
- ▶ 25,000 African healthcare personnel trained by the African instructors in collaboration with the Canadian professionals

## CNIS



- ▶ We run a number of different courses, for doctors, other surgical providers, nurses and midwives

## Our courses and their acronyms!

- ▶ 1. FUNDAMENTAL INTERVENTIONS, REFERRAL AND SAFE TRANSFER (FIRST)  
(Clinical Officers, Nurses)
- ▶ **THE PURPOSE-** The purpose of the course is to enable health officers to prepare appropriate priority management plans for their patients and to obtain fundamental skills in front line, basic surgical care. In many cases, patients die because of the lack of skills necessary to assess patients to determine who needs priority referral and prepare patients for safe transfer.
- ▶ 2. ESSENTIAL SURGICAL SKILLS® (ESS)  
(Medical Students, Assistant Medical Officers)
- ▶ **THE PURPOSE-** The purpose of the Essential Surgical Skills course is to put into the hands of primary care providers working in low-income regions a standard set of life saving surgical skills for emergencies that such clinicians face frequently. Participants are taught 40 life-saving surgical techniques that will enable them to save countless lives in their communities.

## Our courses, cont....

- ▶ 3. STRUCTURED OPERATIVE OBSTETRICS (SOO)
- ▶ (Assistant Medical Officers, Residents, Doctors)
- ▶ **THE PURPOSE** - The SOO course is utilized in sub-Saharan Africa to improve the management, technical and surgical skills needed to perform a C/Section as well as other advanced obstetrical procedures. One in twenty-two women die a maternal death annually in sub-Saharan Africa. Pregnancy complications cannot always be predicted, however they can be handled effectively if the knowledge is provided.

## Courses cont.

- ▶ 4. SAFE SURGERY SAVES LIVES (SSSL)
- ▶ **THE PURPOSE** - Building on the World Health Organization's (WHO) Safe Surgery Saves Lives initiative, this CNIS course introduces, reviews, and reinforces the idea of a culture of safety, which the perioperative nurse participants can achieve within the operating rooms.
- ▶ 5. ESSENTIAL OSTEOMYLITIS MANAGEMENT
- ▶ **THE PURPOSE** - the object of this course is to train medical officers at the district level in the essential surgical techniques necessary to control musculoskeletal infection and prevent serious disabling impairment. Septic conditions of all types are on the increase and common in lower income countries. Bones and joints are frequently involved in children resulting in osteomyelitis and septic arthritis. In tropical communities infection within muscle is uniquely prevalent. It is the responsibility of medical officers at the district level to treat musculoskeletal infections as early as possible.

## Our courses, cont....

- ▶ 6. ESSENTIAL BURN MANAGEMENT
- ▶ **THE PURPOSE** - to provide the knowledge base, technical skills and rationale to create effective and competent burn teams in low resource centers. Each team, comprised of 4-5 members, should have a common baseline knowledge level and know their part in the performance of specific procedures and understand the need for team management of the burn injury patient.
- ▶ 7. STRUCTURED HERNIA REPAIR
- ▶ **THE PURPOSE** - to provide training for the non-surgeon workforce to competently manage and surgically repair selected groin herniae. This training is standardized, rigorous and certifiable by the national medical authority.

## Our courses, cont....

- ▶ 8. TRAUMATIC BRAIN AND SPINE INJURY
- ▶ **THE PURPOSE** - to prepare clinicians to timely and adequately manage the patient with an acute head injury or cervical spine injury and to intervene appropriately and competently.

### ADDITIONAL NON-CLINICAL COURSES/ACTIVITIES:

- ▶ 9. LIFE SKILLS FOR ELEMENTARY SCHOOLS
- ▶ **THE PURPOSE** - to provide training for the non-surgeon workforce to competently manage and surgically repair selected groin herniae. This training is standardized, rigorous and certifiable by the national medical authority.

## Courses, cont....

- ▶ 10. INJURY EPIDEMIOLOGY FOR AFRICA
- ▶ **THE PURPOSE** - to collect data on trauma and violence recorded by hospital emergency departments and to collect data on deadly road accidents recorded by police departments. Analyzing the data leads to recommendations regarding the reduction in trauma and violence for the consideration of various stakeholders.
  
- ▶ 11. THE PLACE OF SURGERY IN INTERNATIONAL DEVELOPMENT
- ▶ **THE PURPOSE** - a workshop that affords a unique opportunity to profile the role that surgical care plays in health care and development globally. Topics to be discussed include: the current status of surgical care needs globally, the principles of international surgical-care development, and opportunities for involvement. Although the concepts discussed will apply globally, the primary mandate of the CNIS is Africa, and it will be from this continent that illustrations will be drawn.

## Safer Communities Initiative: reducing accidental trauma and promoting safety



Addressing the high rates of trauma-related deaths, which outnumber deaths related to HIV/AIDS, tuberculosis and malaria combined.

## Bethune Round Table: Our Annual National meeting



Promoting Canadian involvement in international surgery, while raising awareness of the critical issues of global injury and maternal mortality

## Working with our colleagues and partners in improve global outcomes



The SOO course addresses the issues of maternal mortality and incapacitation in low-income regions with an emphasis on safe motherhood

Three basic components of all courses:  
learning the content, practicing the skill in  
the lab, taking the skill to the OR



The ESS course provides clinicians in low-income regions with a standard set of life-saving skills for the medical emergencies they encounter daily

We work pretty hard



- ▶ We don't often get to go on Safari but sometimes the safari comes to us!!
- ▶ Kigoma visitor!

## The famous beef heart



- ▶ We use animal tissue for practice
- ▶ Behold the beef heart:
- ▶ Just like a moderately well-involuted uterus!
- ▶ You can even do a second layer Lambert suture!

## Kasulu Tanzania



- ▶ Dr. Elizabeth M, our star, and medical director of the surgical program, and local champion of SOO
- ▶ These student are learning on the low-tech simulator for Cesarean section



### Tanga AMO class

These people do most of the surgery in rural northeast Tanzania and love ESS and SOO.

Our goal: Every new intake of students get both ESS and SOO in their first 6 months.



### Perfect knots!

Less bleeding, less complications

Long term, lower mortality

## Sometimes we have help with any leftovers



- ▶ Tanga, Tanzania
- ▶ They will eat anything so we have to be careful!!

Not exactly the Ritz...

### Tanga Airport

At least it is not far from Arrivals to Departure.

Plus, there is a couple of chairs inside!



Accommodations vary...



As do roads...

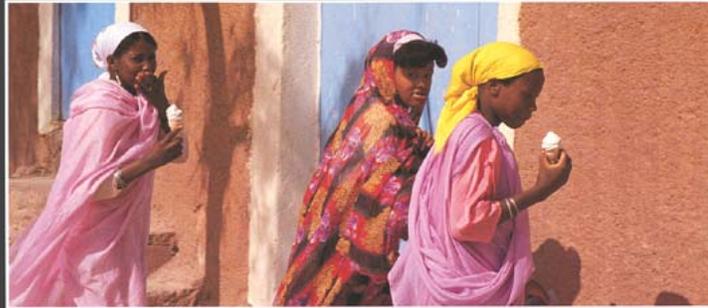


## And we need all the help we can get as we expand:

- ▶ Presently, digitizing curriculum for many courses, and putting it on mobile platforms
- ▶ Presently building a 6 month curriculum with the Canadian Association of Midwives for South Sudan
- ▶ Presently working in Tanzania on a project started with CUSO in Kigoma region
- ▶ Several large proposals have been submitted including an expansion of the work in Tanzania and a new partnership with Nigeria

## What you can do

- ▶ Join
- ▶ Donate
- ▶ Volunteer
- ▶ Help
- ▶ Visit our website: [www.cnis.ca](http://www.cnis.ca)
- ▶ Advocate for global health initiatives!



Thank you