An Introduction to International Surgery

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Determinants of Health-
- Environment, poverty, ignorance, migration
- Clean water, food security, education, women, breast feeding, birth control, prevention

...and that surgery was too complex and expensive for poor countries
“Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity”

-Preamble to the Constitution of the World Health Organization, July 1946
• Public Health: The science and art of preventing disease, prolonging life and promoting health ... through organized community effort
International Surgery:

- Humanitarianism and focus on injury. “Needs Driven”
- Exchange of information and skills between surgeons and medical people working in areas at different levels of development
- Understanding how determinants of health, illness and injury vary in different regions
  - Understanding the constraints that determine standards of care in order to change them
  - Extensive experience practicing in different circumstances; Surgery in General
  - A commitment to capacity building through education, innovation, and research that is both ethical and practical
“What on earth am I supposed to do now?”
The Art of Moving Among Medical Cultures

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Resource Rich  
Poor  
Religion  
Culture  
Politics  
War  
Geography
“International Surgical Experiences”

Tall Tales of Exotic Lands

Colourful Natives with Exotic Diseases
Bethune Round Table on International Surgery 2002: Surgical Education for Development
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Effectiveness and the Humanitarian Imperative: Prevention, Treatment and Research for the Global Pandemic of Injury

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We’re all in this together

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Humanitarian Imperative
Treating Injuries is cost-effective
World DALYs lost - by Cause 1999

- Injury: 14%
- Non-Communicable: 15%
- Cancer: 6%
- NeuroPsych: 11%
- CardioVasc: 11%
- Communicable: 25%
- TB: 2%
- Malaria: 3%
- Diarrhea: 5%
- HIV: 6%
- Maternal: 2%
World DALYs lost - by Cause 2020 (Baseline)

- Injury: 20%
- Non-Communicable: 20%
- Communicable: 10%
- CardioVasc: 15%
- NeuroPsych: 15%
- Cancer: 10%
- Malaria: 1%
- TB: 3%
- HIV: 3%
- Diarrhea: 3%
- Maternal: 0%
Leading Causes of Death, Low and Middle Income Countries, Females Age 15-44 years, 1998

- Rheumatic Heart Disease
- Acute Lower respiratory Infections
- Hypertensive Disorders of Pregnancy
- Abortion
- Interpersonal violence
- Maternal Sepsis
- Cerebrovascular disease
- Ischemic Heart Disease
- Fires
- Road Traffic Injuries
- Maternal Hemorrhage
- War Injuries
- Tuberculosis
- Self-inflicted Injuries
- HIV/AIDS

Thousands

0 100 200 300 400 500 600 700 800 900
Proportion of DALYs by Cause 1999

- **Injuries**
- **Noncommunicable conditions**
- **Communicable, maternal, perinatal and nutritional**

Comparing regions:
- **Africa**
- **South-East Asia**
- **Europe**
• Do we need to do anything at all?
The Injury Pandemic - Needs

- Advocacy
- Service, Teaching and Research
- Acute care and Population Health
- Primary, secondary & tertiary prevention
- Guidelines, protocols and professional support
Injury Pandemic - Actions

- Magnitude demands response
- Increase awareness (MoH, Donors, NGO’s, Universities)
- Acute care is a humanitarian imperative, cost effective, and builds confidence in prevention programs
- Tailor interventions to the problem
- Combine service with teaching and research
- Partner with professionals
- Build local research and teaching capacity
Who does It - Canada

- Canadian Network for International Surgery (CNIS)
  - Injury control Centre- Uganda
  - Injury Prevention Initiative for Africa
  - Essential Surgical Skills course™
- U of T, Office of International Surgery
- Canadian Association of General Surgeons
- Foundation for International Education in Neurosurgery (FIENS)
- MaterCare
- Scattered individuals
How do you do International Surgery?

Partnerships with researchers in developing countries
Triage: Do the best for the most / Expend resources on those who have a good chance of making a good recovery
DALYs lost by death at given year (females)

Disability-adjusted life years (DALYs)

Age at death in years

0 10 20 30 40 50 60 70 80 90

0 10 20 30 40

Graph showing the decrease in DALYs lost by death with increasing age.
Discharges by Type, Ghazni Hospital, Sept 1997

- Civilian Emergency: 42%
- Elective: 24%
- Civilian Trauma: 24%
- War Wounded: 5%
- Inappropriate: 5%
ICRC Ghazni, Afghanistan September 1997

191 inpatients discharged, mean age 25

Majority had fractures, peritonitis or landmine injuries

6.7% mortality rate

Estimated 10 DALYs saved per patient

Total costs of running the hospital were US $ 9000 / month, incl salaries, medicines, dressings, food, utilities - everything

$47 per patient or $4.70 for each DALY saved
19 yo Female with Acid Burn
The cost of Surgery:

6 months later, alive, gained 12 kg, and pregnant!

Cost of Surgery US $ 60

35 DALYs saved (less about 15 for the scars)

$ 3 per DALY saved
Tuberculosis Treatment (DOTS)

Cost per death averted

= $75 - 275

But interruption of Transmission means cost =

$1 - 3 per DALY saved
Untreated all will be dead in 2 years

HIV + 25 man = 30 DALYs
HIV + 24 woman = 32 DALYs
HIV + 2 child = 36 DALYs

____________________ 98 DALYS

Treated, all will be dead in 5 years

30 man = 27 DALYs
29 Women = 29 DALYs
7 child = 37 DALYs

93 DALYs

Assuming cost of medications $2/day
3 x $700 x 5yrs = $10,500
or $2100 per DALY saved
Research
Follow-Up of 88 Burns Operated at the Rose Rehabilitation Centre, Phnom Penh, Cambodia

Dr. Heng Lee
Dr. Nous Sarom
Dr. Jim Gollogly
Dr. Massey Beveridge
Research Capacity Building in Africa

THE PTOLEMY PROJECT
The Injury Pandemic - Needs

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