How to make global surgery part of your academic career

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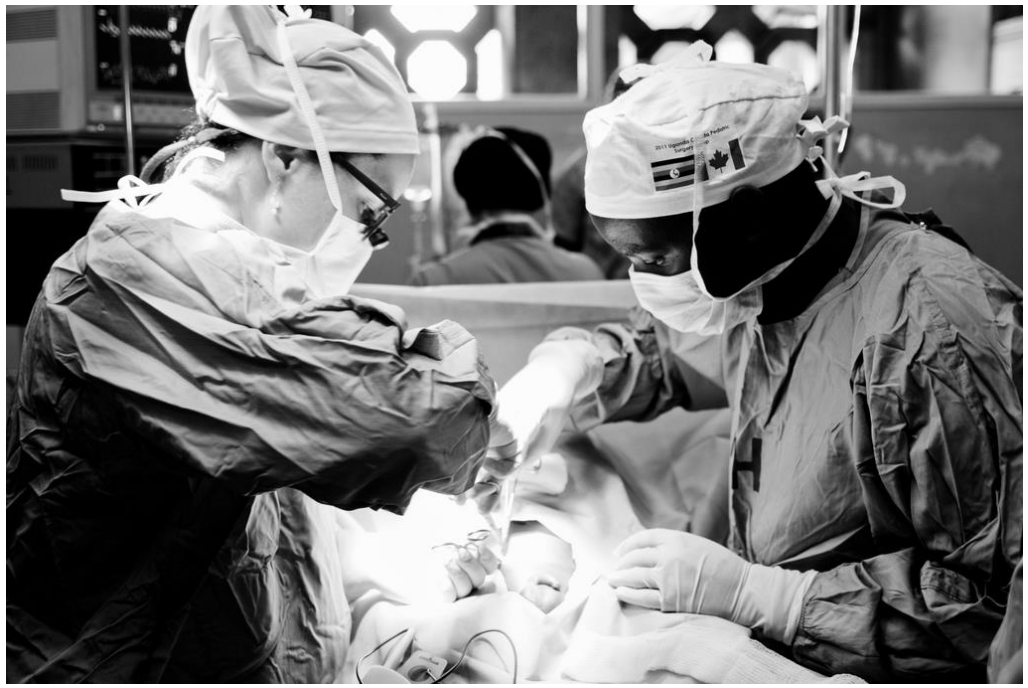
Overview



- Historical
- Global Surgery – definition/concept
- Academic Surgery – definition/concept
- Academic global surgery
- Defining your interest/goals → guiding your plans
  - Clinical
  - Research
  - Training
  - Advocacy
  - ”Mission”
  - Humanitarian/conflict
- Pitfalls
- General advice

What is Global Surgery?

“Global surgery is an area of study, research, practice, and advocacy that seeks 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.

It uses collaborative, cross-sectoral, and transnational approaches and is a synthesis of population-based strategies with individual surgical care. “

Dare AJ, et al. Global surgery: defining an emerging global health field. The Lancet. 2014.

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What is Academic Surgery?

The American Journal of Surgery 214 (2017) 165–179

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The American Journal of Surgery

journal homepage: www.americanjournalofsurgery.com

The seven attributes of the academic surgeon: Critical aspects of the archetype and contributions to the surgical community

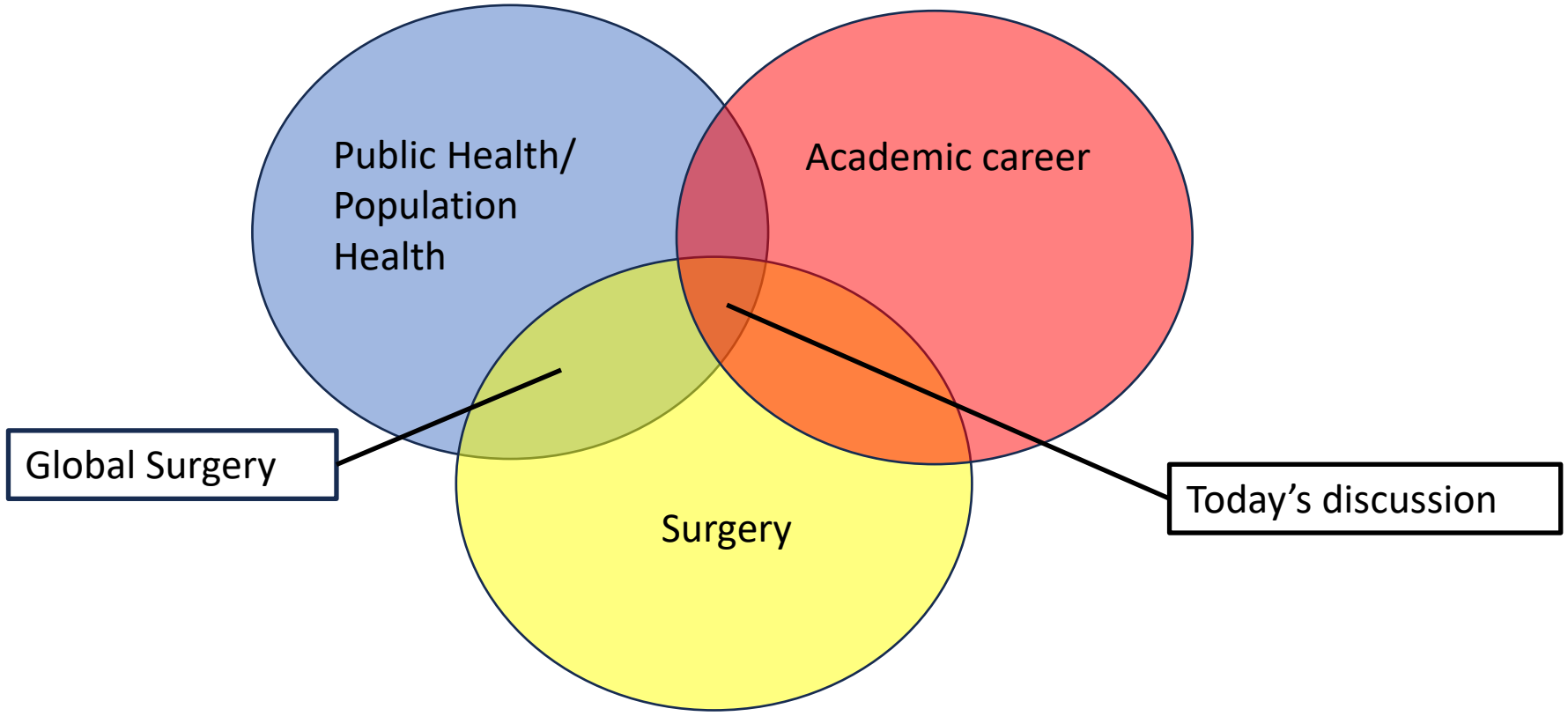
Todd K. Rosengart, MD *, Meredith C. Mason, MD, Scott A. LeMaire, MD, Mary L. Brandt, MD, Joseph S. Coselli, MD, Steven A. Curley, MD, Kenneth L. Mattox, MD, Joseph L. Mills, MD, David J. Sugarbaker, MD, David A. Berger, MD

Michael E. DeBakey Department of Surgery, Baylor College of Medicine, Houston, TX, USA

"The term "academic surgeon" is usually employed to describe a surgeon who is a member of a medical school department of surgery… more precisely defined academic surgeon as "anyone who contributes to the intellectual life of a department or the discipline of surgery in a serious, systematic way."

1. Identify complex problem that others have ignored or thought insolvable
2. Become an expert in the field
3. Innovate new insights, treatments, or procedures to advance that clinical problem
4. Observe new treatment outcomes closely to further improve such innovations
5. Spread knowledge and expertise through publications and presentations
6. Ask important questions in the field to try to further improve care
7. Train the next generation of surgeons and scientists

Academic Global Surgery

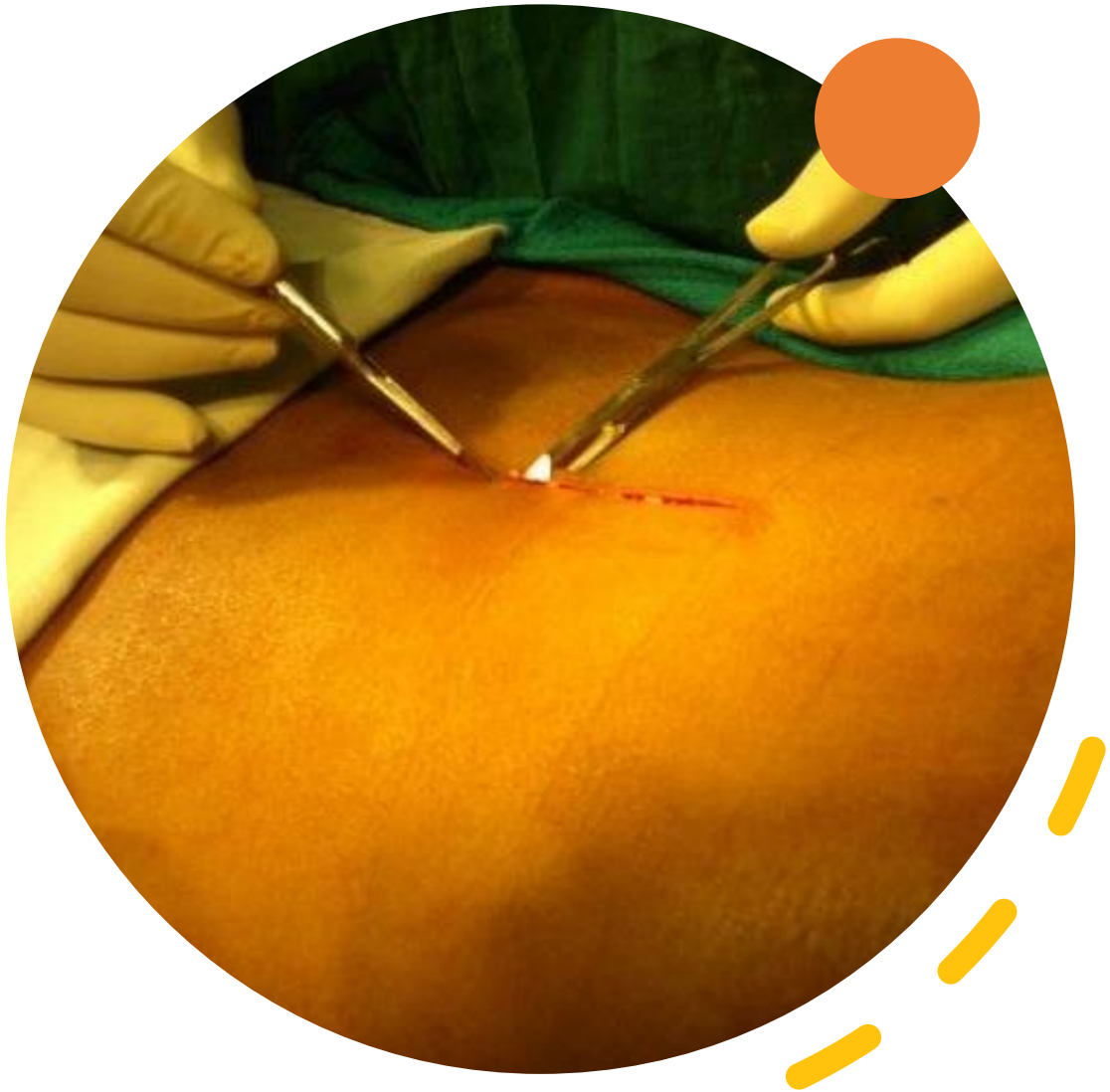


What are you interested in?

- Clinical
- Training
- Research
- Advocacy
- Humanitarian/conflict

Clinical Global Surgery focus

- Time commitment
    - 1 – 3 weeks per year
    - > 1 month per year
    - 12 months per year
- Goals/motivation
    - Clinical medicine in your area of expertise – provide care where it is needed, innovate, broaden scope of care to low-resource settings
    - Clinical medicine “outside” your area of expertise – develop/maintain a diverse skill set
    - Develop global surgery expertise
    - Live/work in a different setting



How do you incorporate this into academic medicine?

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Train the next generation… here or there

- Massive surgeon, anesthesia, obstetrician (SAO) workforce shortage in LMICs
- Trainees from HICs interested in global health
- Trainees from LMICs interested in learning from a diverse set of mentors, and getting experience with different techniques/knowledge/skills than locally available
- Build trans-national programs

SAO density averages for 2015, 2019 and projected 2030 (*) trends in LIC, LMIC, UMIC and HIC countries

Year	LIC	LMIC	UMIC	HIC
2015	1.81	1.85	19.39	44.02
2019	2.35	2.1	22.95	44.19
2030*	3.85	2.78	32.73	44.65

Publish or perish? Research in global surgery

- Find solutions to unique LMIC surgical problems/setting
- Public Health research relating to surgery in underserved populations
- Find new solutions to surgical problems adapted to LMIC resources
- Research ABOUT global surgery

Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development

Dr John G Meara, MD, Andrew J M Leather, MS, Lars Hagander, PhD, Blake C Alkire, MD, Prof Nivaldo Alonso, MD, Prof Emmanuel A Ameh, MBBS, Prof Stephen W Bickler, MD, Lesong Conteh, PhD, Anna J Dare, PhD, Justine Davies, MD, Eunice Dérivois Mérisier, MD, Shenaaz El-Halabi, MPH, Prof Paul E Farmer, PhD, Prof Atul Gawande, MD, Rowan Gillies, MBBS, Sarah L M Greenberg, MD, Caris E Grimes, MBBS, Prof Russell L Gruen, PhD, Edna Adan Ismail, SCM, Thaim Buya Kamara, MBChB, Prof Chris Lavy, FCS [ECSA], Ganbold Lundeg, PhD, Prof Nyengo C Mkandawire, MCh(Orth), Nakul P Raykar, MD, Johanna N Riesel, MD, Prof Edgar Rodas, MD, John Rose, MD, Nobhojit Roy, MD, Mark G Shrime, MD, Prof Richard Sullivan, MD, Stéphane Verguet, PhD, Prof David Watters, ChM, Thomas G Weiser, MD, Iain H Wilson, MBChB, Gavin Yamey, MD, Prof Winnie Yip, PhD

The Lancet
Volume 386 Issue 9993 Pages 569-624 (August 2015)
DOI: 10.1016/S0140-6736(15)60160-X

An example of global surgery research

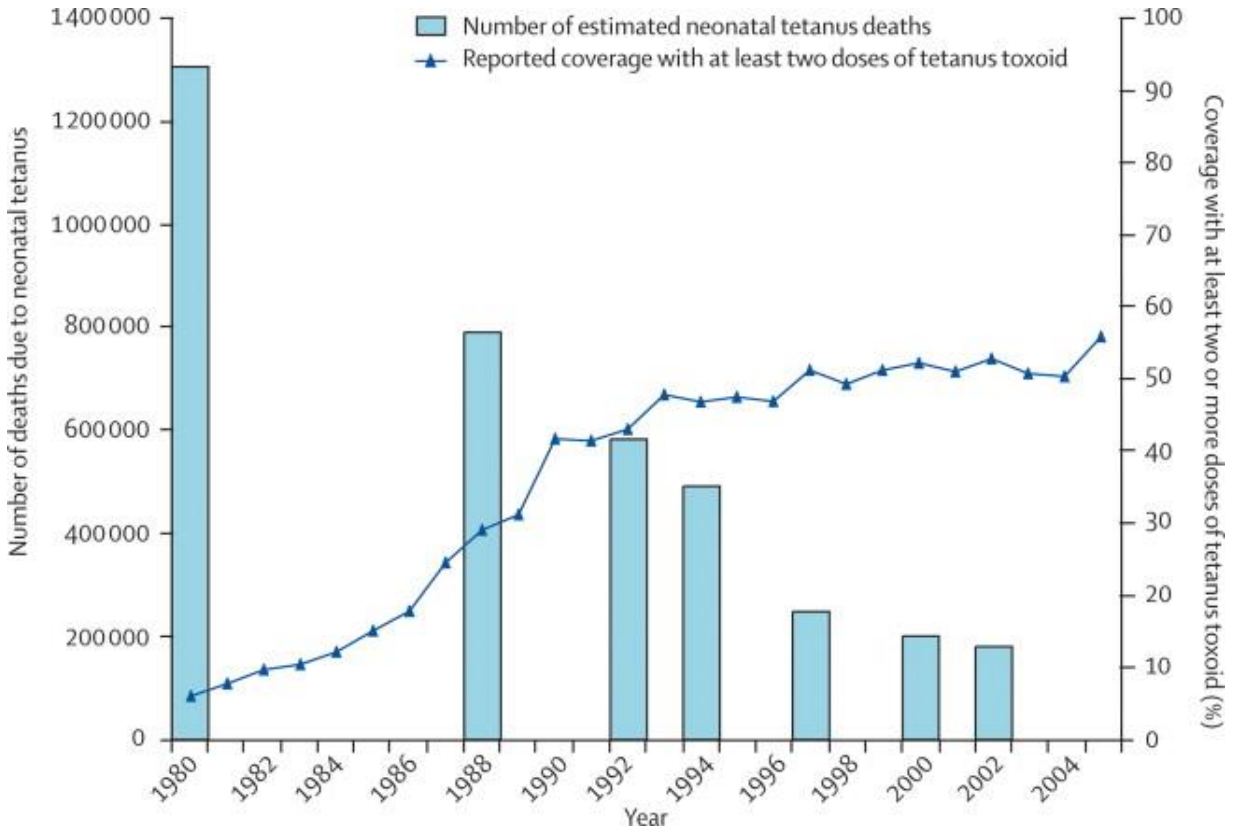
- Gareth Eeson – study done during general surgery residency/MPH training

- Examined cost effectiveness of pediatric inguinal hernia repair in Uganda
- Comparison to other public health interventions

Isn’t surgery VERY expensive?

Compare costs: Vaccines vs hernia surgery

- First: What are we treating or preventing? What is the problem?
- Example: Tetanus



Roper, et al. Maternal and Neonatal Tetanus
Lancet. 2007

Compare costs: Vaccines vs hernia surgery

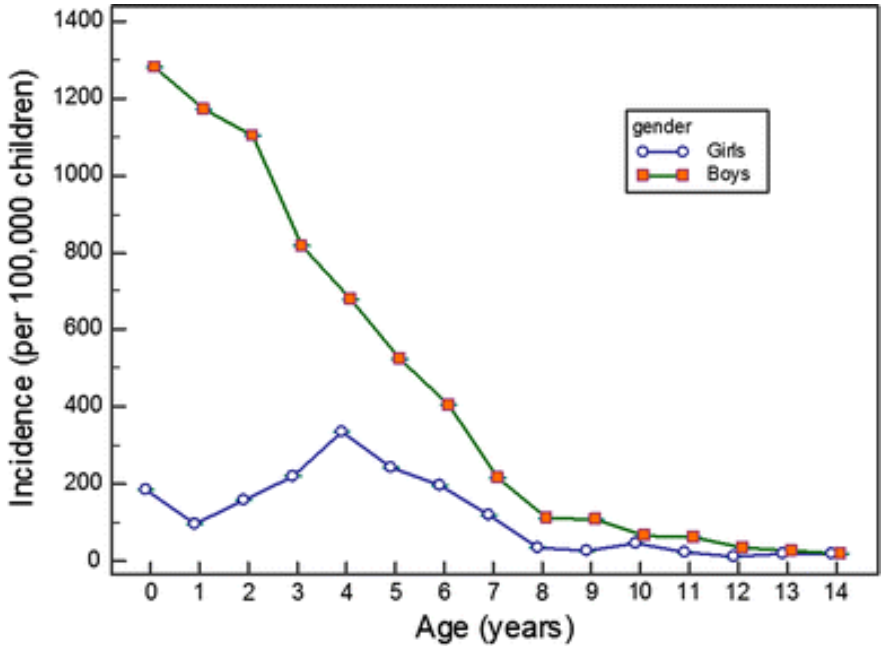
- First: What are we treating or preventing? What is the problem?

- Example: Inguinal Hernia.

Chang, SJ., Chen, J.YC., Hsu, CK. et al. Hernia (2016) 20: 559.

Cumulative incidence (0 – 15 yr)

- 6.62% M, 0.74 % F



Cost of DTP in Africa

- $0.2100 for 10 doses
- Cost of syringes
- Cost of health care workers
- Travel costs for family

- Approximately $12/DALY saved

How expensive is surgery in LICs?

Compare using cost per DALY saved.

Study (Gareth Eeason, Surgery Resident):

Pediatric Inguinal hernia repairs done at 2 “camps”

65 patients with 69 repairs

- Measured costs
- Made Markov model to take into account probability of morbidity and mortality from surgery and no surgery

Cost Effectiveness of Pediatric Inguinal hernia repair

- Measured system and family costs for 69 pediatric inguinal hernia repairs in Uganda
  - Cost to system: $87
  - Cost to family: $54

- Use estimates of years of life lost to early death or disability for each of the states in the model
- Use natural history and morbidity and mortality rates to estimate percentage of patients in each of the “health states”
- Calculate cost per DALY saved

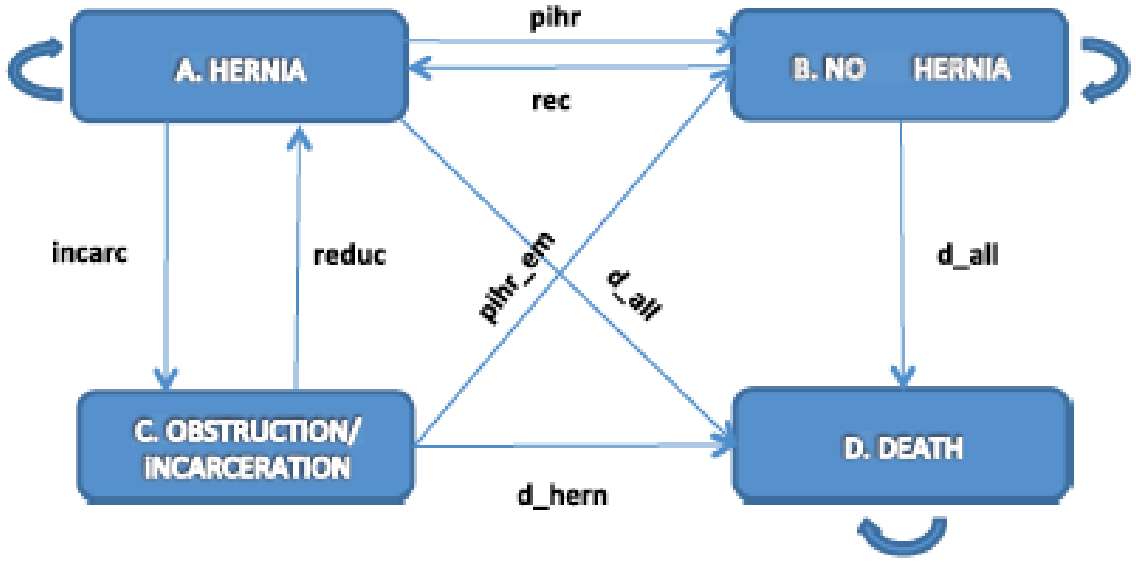
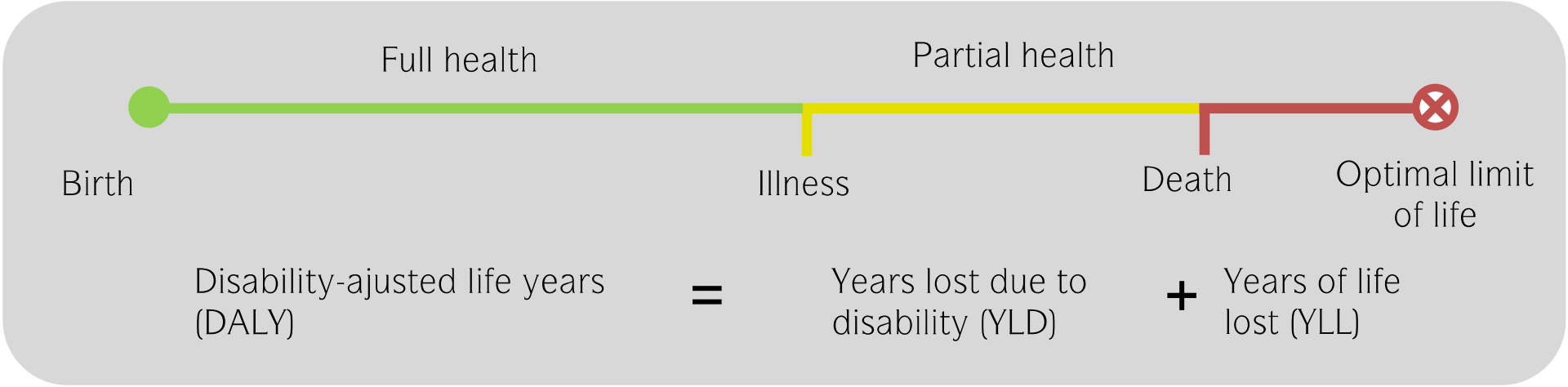


Fig. 1 Markov model. The model depicts 4 mutually exclusive recurring health states represented by *boxes*. Transitions between health states are represented by *arrows*. *pihr* pediatric inguinal hernia repair, *rec* recurrence, *incarc* acute incarceration or obstruction, *reduc* reduction of acutely strangulated hernia, *pihr_em* emergency surgery for acute hernia presentation, *d_all* non-hernia related mortality, *d_hern* hernia-related death

Eeson G. et al. World J Surg. 2014

How to compare surgery and a vaccine?



Disability Adjusted Life Year (DALY)

Methodology allows comparison of different diseases or problems

Measures early mortality + morbidity

How expensive is surgery in LICs?

Table 3 Cost-effectiveness of priority health interventions recommended for implementation by the WHO for the African region (Afro-E)

Condition	Intervention	Cost per DALY (I$)
Tuberculosis	Treatment of new case of smear positive TB with DOT	6-8
Newborn care	Support for breastfeeding mothers	10
Tetanus	Tetanus toxoid vaccine	12
Inguinal hernia	Pediatric inguinal hernia repair with high ligation under general anesthetic	12
Malaria	Case-management with artemesinin-based combination therapy	12
Blindness	Targeted treatment of trachoma with	17
HIV	Highly active antiretroviral treatment	556–5175

Source WHO-CHOICE Project (http://www.who.int/choice/results/afre/en/index.html)

- Surgery is not a luxury item
- For some conditions it is extremely cost effective

Eeson G. et al. World J Surg. 2014

Comparison of cost effectiveness

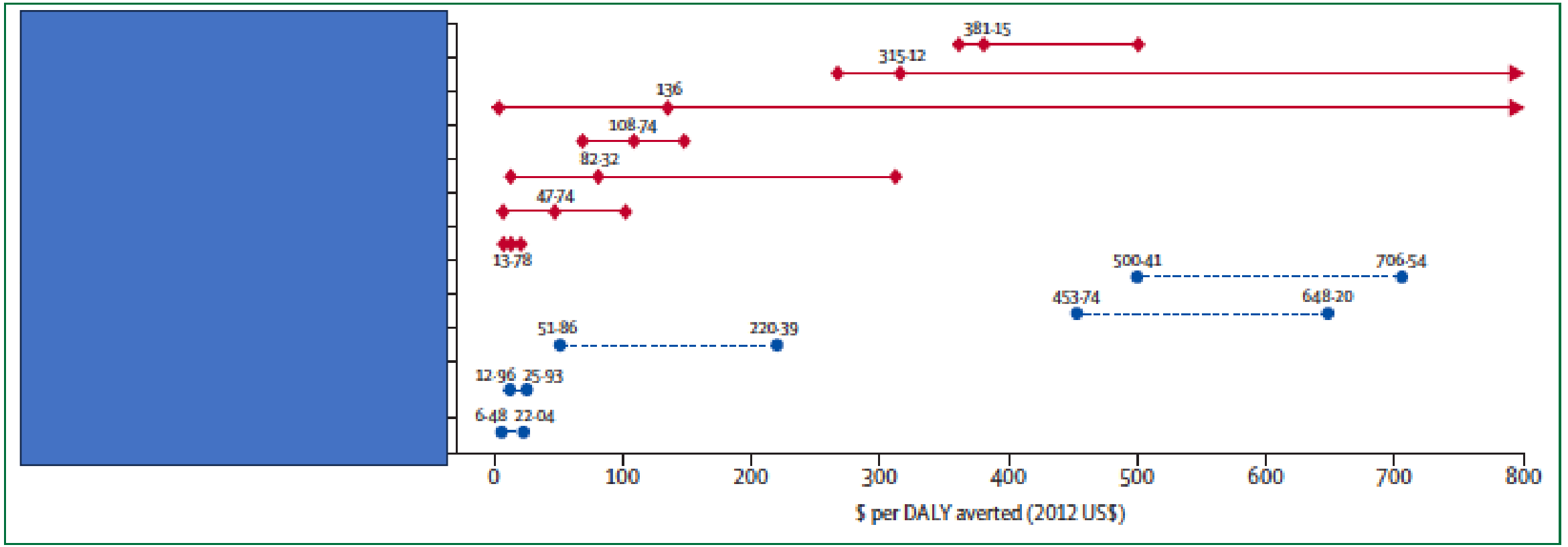


***Figure 13*: Cost-effectiveness of surgery in low-income and middle-income countries compared with other public health interventions**
Data points are medians, error bars show range. Surgical interventions are denoted by the diamonds and solid lines, public health interventions by the circles and dashed lines. Reproduced from Chao and colleagues,[53] by permission of Elsevier. DALY=disability-adjusted life-year.

Meara et al. Global Surgery 2030. Lancet 2015

Comparing the costs of scaling up surgery… to doing nothing

$ 420 Billion vs. $12.3 Trillion

- Surgical conditions impair economic productivity
- Increasing access to safe, timely, and affordable surgical and anaesthesia care would produce substantial economic and welfare gains.
- 3 Key Steps:
- Include essential surgical care within publicly-financed health coverage policies
- Invest in the scale-up of surgical services within national health systems
- Monitor financial flows to surgical care to ensure accountability and transparency

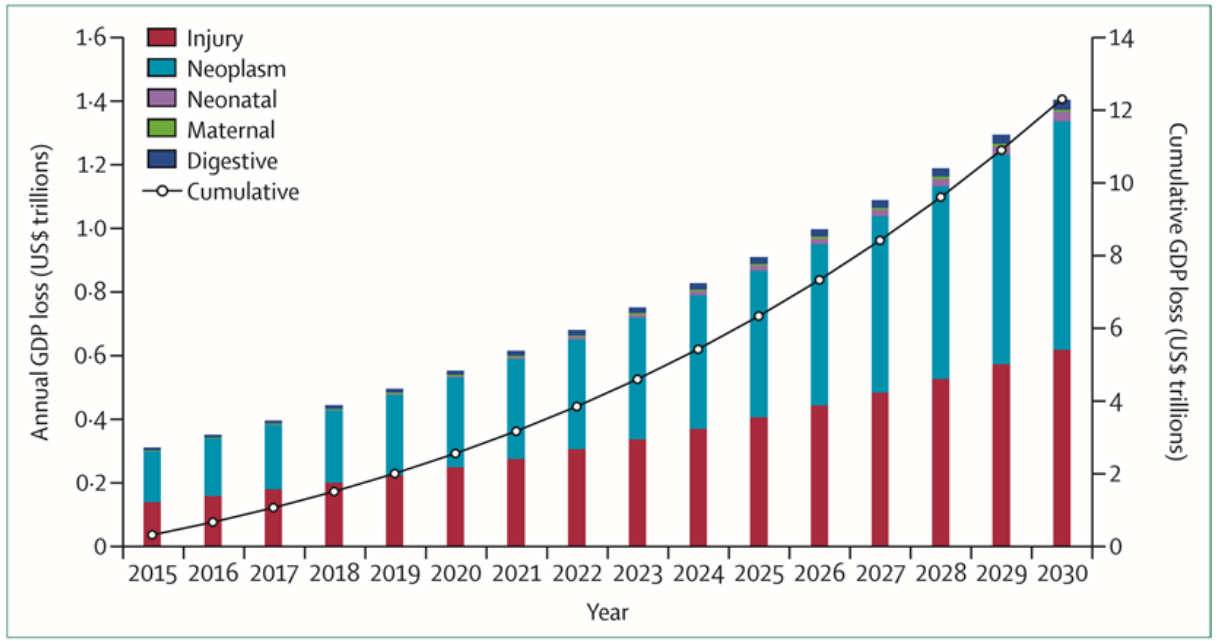


Figure 1. Annual and cumulative GDP loss in low-income and middle-income countries from five categories of surgical conditions. Based on the WHO Projecting the Economic Cost of Ill-Health (EPIC) model (2010 US$, purchasing power parity). GDP=gross domestic product.

Meara et al. Global Surgery 2030. Lancet 2015

Advocacy/Health Policy

- Surgery is the neglected step-child of public health
- Paucity of health policy related to surgery in LMICs
- World Health Assembly Resolution WHA68.15: "Strengthening Emergency and Essential Surgical Care and Anesthesia as a Component of Universal Health Coverage"

World Health Organization

UNITED STATES AGENCY INTERNATIONAL DEVELOPMENT
USAID

G4 alliance
surgical, obstetric, trauma, & anaesthesia care

Humanitarianism

Humanitarianism = that which is “motivated by an altruistic desire to provide life-saving relief; to honor the principles of humanity, neutrality, impartiality, and independence; and to do more good than harm.”

Barnett M, Weiss TG. Humanitarianism: A brief history of the present. In: *Humanitarianism in Question: Politics, Power, Ethics*. Ithaca, NY: Cornell University Press; 2008

MEDECINS SANS FRONTIERES
DOCTORS WITHOUT BORDERS

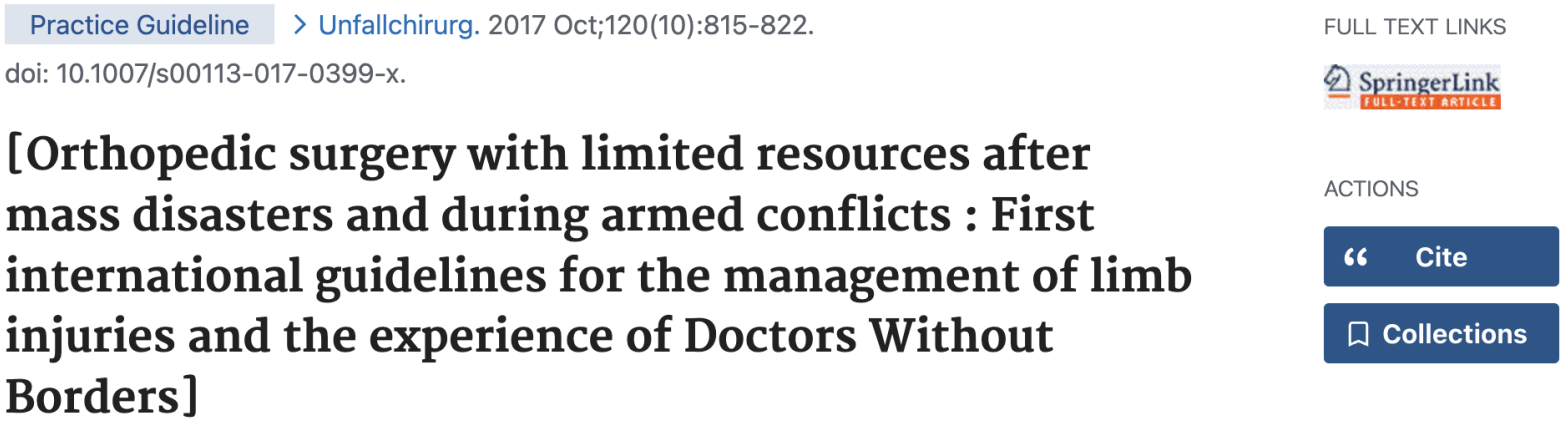
COMITE INTERNATIONAL GENEVE

ICRC

Humanitarianism and Academic Career

- Does not lend itself as well to academic career
  - Conflict/disaster/displaced populations are **not easy** to ethically and safely study
  - **Not ideal** for training (safety, resource allocation, etc)
  - Already landmines – advocacy is complex

  - **NOT an excuse! Nothing is impossible!**



Practice Guideline > Unfallchirurg. 2017 Oct;120(10):815-822.

doi: 10.1007/s00113-017-0399-x.

[Orthopedic surgery with limited resources after mass disasters and during armed conflicts : First international guidelines for the management of limb injuries and the experience of Doctors Without Borders]

FULL TEXT LINKS

SpringerLink FULL-TEXT ARTICLE

ACTIONS

Cite

Collections

Pitfalls

- HIC way = the right way
- Neo-colonialism
- Surgical options and outcomes depend on the setting
- Drop-in teams with no transfer of knowledge or skills
- The case series…
- Advance your career, but don’t consider LMIC partners

- Do nothing - in effort to avoid accidental offense
- Limit your clinical or education provision to what they already do
- Fail to pass on lessons/insights with academic rigor
- Volunteerism trumps practical considerations

My take on global surgery

- Disclosure: NOT evidence based – N = 1 (plus friends + acquaintances)

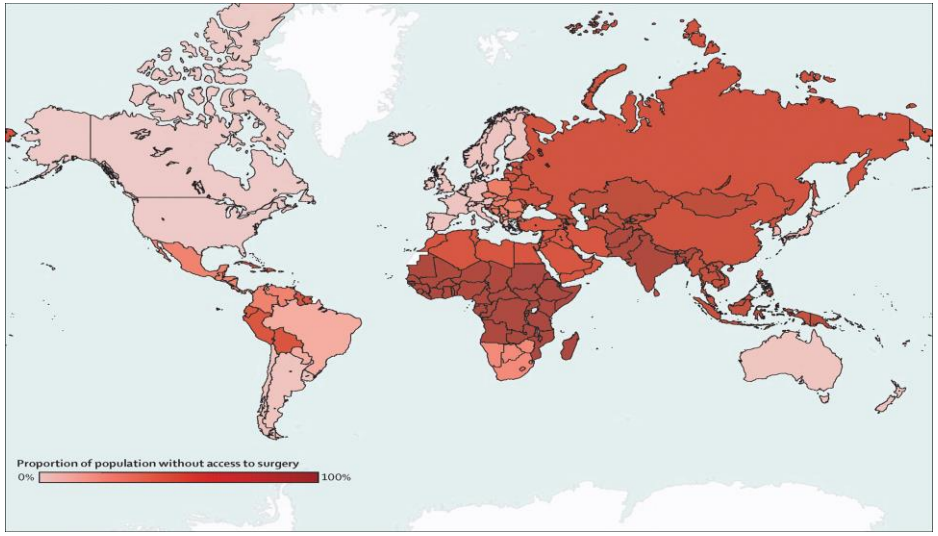
- Real reason people want to do this: To help people + Travel
- Common reason to make it part of academic career:
  - Avoid punishment
  - Belief in value of academics
  - Better job

Why global surgery in academics is great

- SO MUCH POTENTIAL

- Amazing people/relationships
- Sense of tangible contribution
- Job satisfaction is real
- It’s fun and I’m always learning

- SO MUCH POTENTIAL



How to do it?

1. Find a leader who is invested in your success – academic and personal
2. Build relationships
   - Find a mentor if possible (avoid pitfalls)
   - Look for people you want to work with

2. Invest in people and places/institutions in the LONG TERM
   - This does not require frequent travel, but does require evidence of a long-term commitment

3. Find “something” you are passionate about and other people in underserved setting (here or there) who are also passionate about that

4. Look for ways to incorporate this into your academic career

Thank you

John Sekabira, Doruk Ozgediz, Geoff Blair, Phyllis Kisa, Nasser Kakembo, Sr. Margaret Ajiko, Stella Nimanya, Nancy Nabukeera, all the fellows

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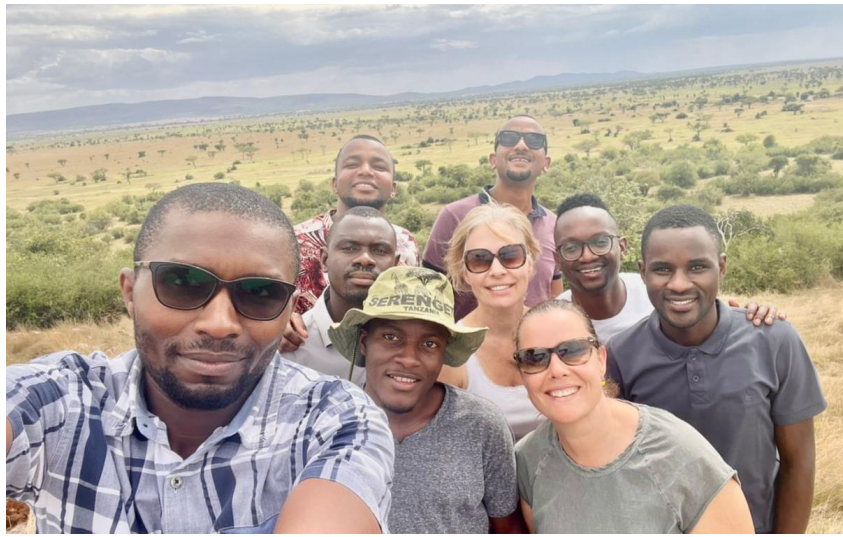
Alex Dzakovic, Guillermo Ares, Baird Mallory, Geoff Blair, Fizan Abdullah, Tim Lautz, my partners



Questions?

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