

# Children's Orthopedics Education for Developing Nations (COEDN)



Unique Fellowship Training Model:  
Tanzania Example 2016-18



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## Children's Orthopedics Education for Developing Nations (COEDN)

- Established in 2014 after multiple surgical training missions to LMIC's to develop this unique model.
- One person non-profit 501c3 NGO.
- All funding goes to projects. None to salaries, marketing or operating costs.

## The Lancet Commission on Global Surgery 2015-30:

*The challenge: To scale up new methodologies to provide quality hands-on surgical skills training that is:*

- Impactful
- Efficient
- Sustainable

*... Train the Trainers*

“Teach a person how to fish”

“Teach a person how to *teach others*  
how to fish”



# MEDICAL WORK MODELS FOR LIC's

1. Large teams, 1-2 week visit, 1-2 x/ yr. “service work”
2. LIC's (Low Income Country) send their best away for training for 1-3 years. “BRAIN DRAIN”
3. Individual (Western) MD's move to site for year(s).
4. COEDN- Many experts come to Africa, train 3-4 surgeons, who establish their own permanent accredited training center.

# Medical Education Hierarchy:

- Medical students
- Residency (4 yr specialization)
  - Eg: Orthopedic surgery
- Fellowship (1-2 yr sub-specialization)
  - Eg: Pediatric Orthopedic surgery

## *TANZANIA- THE NEED (2016)*

- *No active fellowship-trained Pediatric Orthopedic Surgeons in Tanzania... population 55 million !*
- 50% of the population is under 17 y.o.
- No pediatric orthopedic training program
- Est. 100,000 children in need of orthopedic surgery

- **SITE:** Muhimbili Orthopedic Institute (MOI) in Dar Es Salaam, [ nat'l referral/ training hosp.]
- **TARGET:** Train 3 bright orthopedic surgeons who wish to be the future country leaders.
- **DURATION:** COEDN trains full-time for 12 mos., followed by quarterly- 4 week visits in 2<sup>nd</sup> year.

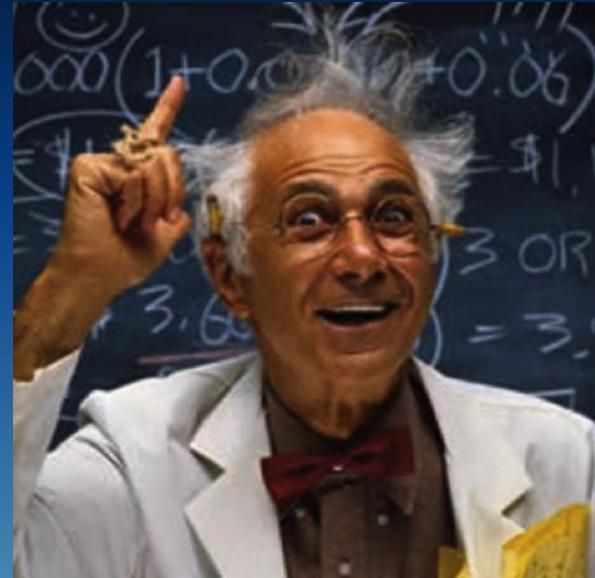
## *TRAINERS:*

- We require our VTT trainers to commit to **4+ weeks on site**... an impactful and meaningful duration of time.
- We invite specialists in the field both working and retired.
- We also encourage mid-career surgeons in practice to negotiate a 6 week+ sabbatical from their employer.

## *TRAINERS:*

We've had great success to date attracting recently retired volunteer pediatric orthopedic surgeons from North America and Europe... with decades of experience:

- surgical
- educational
- leadership training



## *TRAINERS:*

- Join our Rotary **Vocational Training Team** (VTT)
- Great opportunity... impactful and sustainable.
- **Rotary grant support:** airfare, lodging and meals  
...essential in attracting volunteer surgeons.
- Great personal experience- many repeat.

**ACCREDITATION:** *College Of Surgeons of East,  
Central and Southern Africa [COSECSA]*

College of Surgeons of East, Central & Southern Africa



Regulations and Syllabus relating to  
Fellowship Examination  
In Paediatric Orthopaedic Surgery

FCS Paed-Ortho (ECSA)

Similar to the Western Africa College of Surgeons (WACS)

## *ACCREDITATION: COSECSA*

- 14 member nations, train in 19 countries
  - First-world training and testing standards
  - English is language of medical training
  - Residency programs structuring complete
- ...Ready to set up regional centers for sub-specialty training.

## *TANZANIA PROJECT ENDPOINT:*

- 3 accredited “FCS (ECSA)” Fellows stay on at Muhimbili Orthopedic Institute (MOI) *and...*
- Join the local program director to form the core of a *permanent, accredited pediatric orthopedic fellowship training program and...*

- Train 2-3 fellows/ yr. from all of East, Central and Southern Africa



*“International Center of Training  
Excellence in Pediatric Orthopedics”*

## *Unique advantages of this training model:*

- Fellows train in-country... **no "brain drain"**
- Fellows are lead surgeons on all cases
- Ample and complex surgical teaching caseload
- Trained by our best, most experienced MD's

## *Advantages of this training model:*

- **REPUTATION** – International “*Center of Training Excellence in Pediatric Orthopedics*”

... Attract private-pay / insured patients (20%) ...  
to subsidize the uninsured (80%)

- Reduce patient loss to Medical Tourism (India, Europe)

## Children's Orthopedics Education for Developing Nations



**SUCCESS!...** OUR 3 GRADUATES (2019) ARE STAFF SPECIALISTS AND ARE **TRAINING 4 OF THEIR OWN,** **3 OF WHOM HAVE RECENTLY GRADUATED!**

## Children's Orthopedics Education for Developing Nations



**Ward teaching rounds:** 3 fellows, 1 jr. orthopod, 4 registrars  
3 interns + 1-2 residents, nurses, social worker

## Children's Orthopedics Education for Developing Nations



Clubfoot casting training symposium

## Children's Orthopedics Education for Developing Nations



Late presentation children from remote villages and limited resources to seek treatment. Often brought in by NGO partners

## Children's Orthopedics Education for Developing Nations



12 y.o. boy with clubfeet- too painful to walk

...30,000 children/  
year are born with  
clubfeet in Africa!!

## Untreated clubfoot in three 10-11 y.o. children



3 mos. follow-up surgical correction  
(talectomy)

## Children's Orthopedics Education for Developing Nations



**Fellows Research project:** Chronic tibial osteomyelitis

Tx: Intramedullary antibiotic-laden molded cement rod

## Children's Orthopedics Education for Developing Nations



5 yo girl- congenital short femur bone  
(arrow)

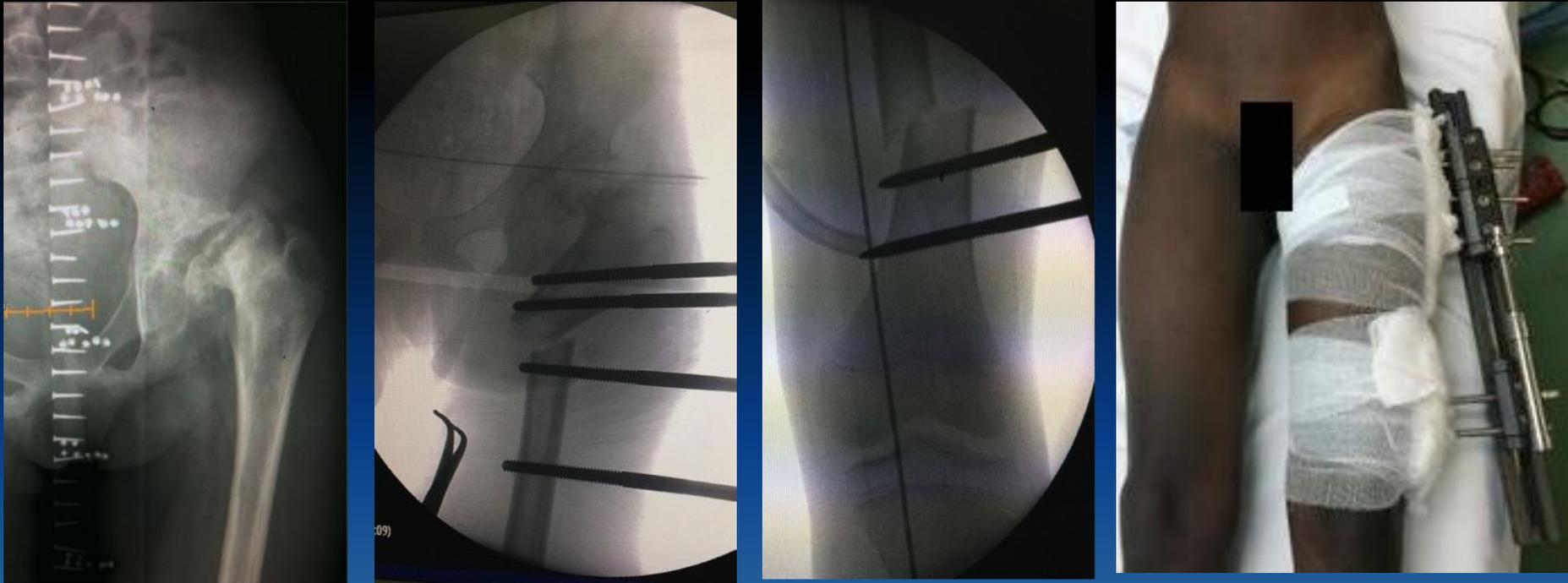
ROTATIONPLASTY (ankle is the new  
knee joint) + below-knee prosthesis

## Children's Orthopedics Education for Developing Nations



12 y.o. child: Infected, destroyed (ball) and dislocated hip joint

## Children's Orthopedics Education for Developing Nations



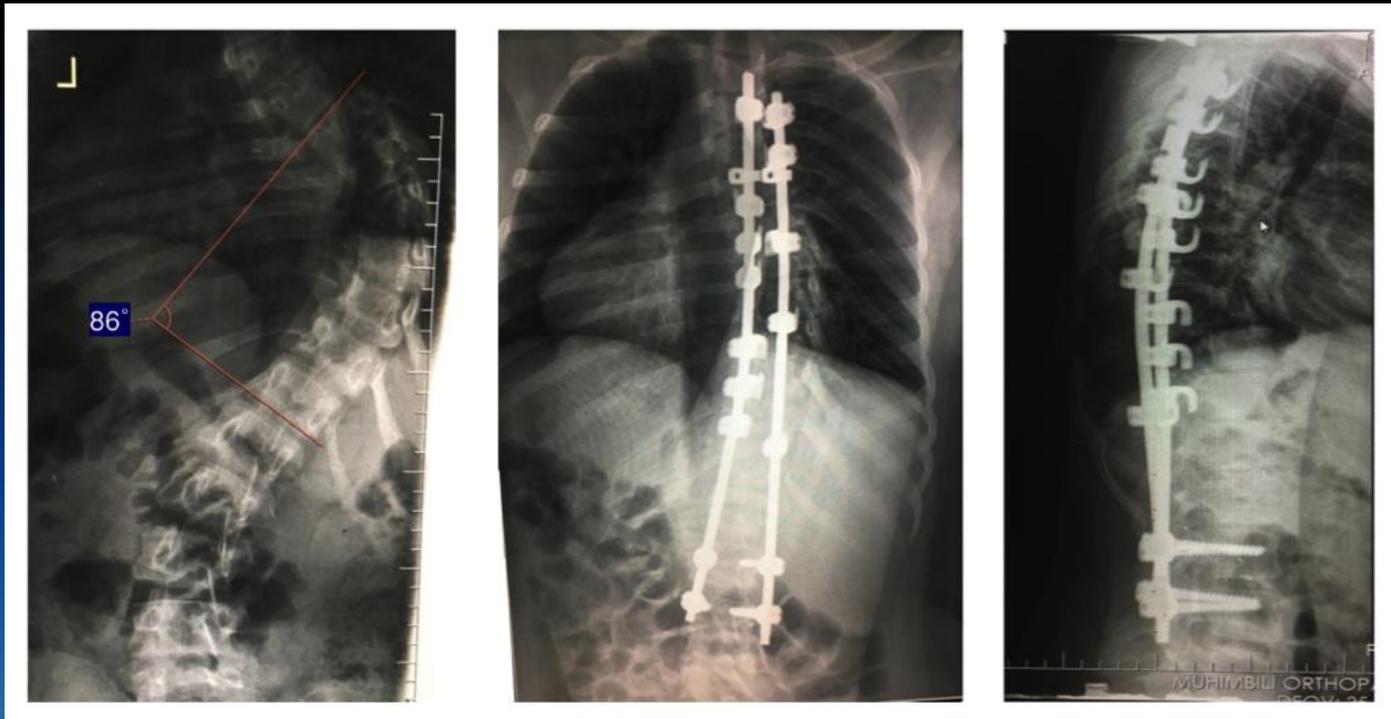
13 yo female- SS Anemia with a painful, destroyed hip. Pelvic support osteotomy and distal femoral osteotomy with realignment plus lengthening.

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Patient walking pain-free 6 mos.  
after arrival in a wheelchair.



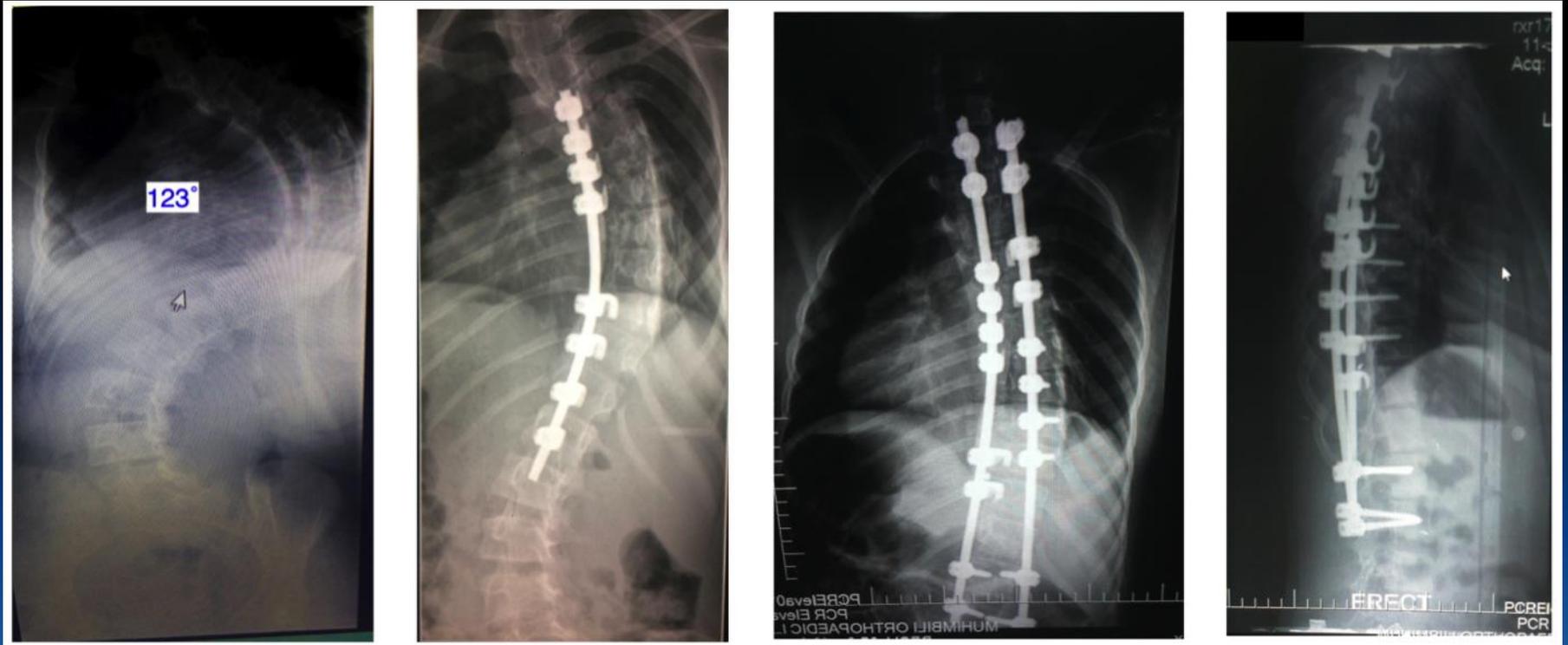
First operative scoliosis case in Tanzania:



13 yo girl with Adolescent Idiopathic Scoliosis (AIS)

86 ° curvature... correction down to 40°

2<sup>nd</sup> case:

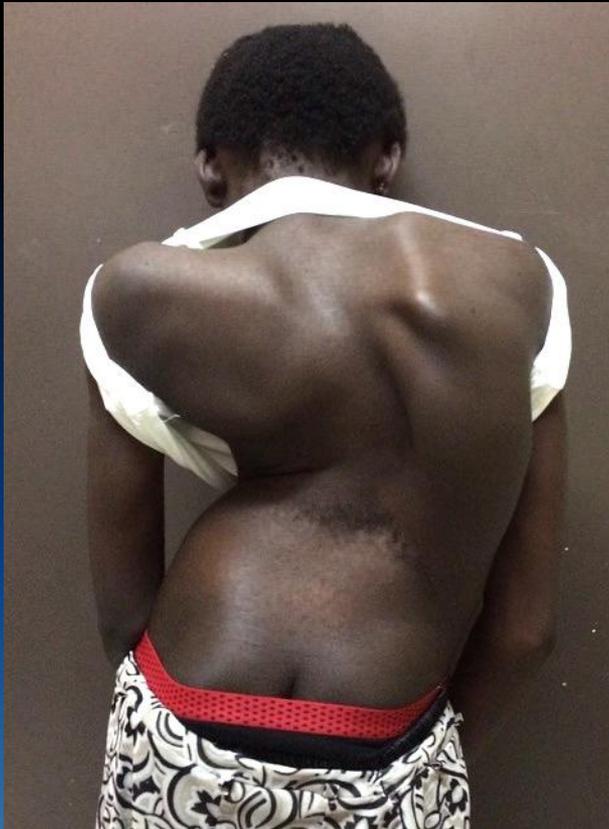


13 yo girl with AIS. 123° stiff curve (only unbends to 103°)

*Surgery 1: Temporary Internal distraction rod* - correction to 58°

Surgery 2: Final correction to 44° with permanent dual rods

## Children's Orthopedics Education for Developing Nations



Very grateful patient and family... and inspired fellows!

## Children's Orthopedics Education for Developing Nations



Late presentation: - due to economics, distance, traditional healers, lack of primary care and education.

“You go to the big hospital to lose your leg, lose all your money and/ or die”

*Training model is scalable, and exportable  
to all other surgical & medical specialties*

The KEY Ingredient:

Recently retired doctors... a large, able  
untapped VTT resource!

...ROTARY "PROGRAMS OF SCALE" ?

## VTT PROGRAMS TIMELINE:

- PAST: Tanzania- 3 trained, now they have trained:
  - 3, which have all graduated.
  - 1, currently enrolled.
- RECENT: Uganda- 3 trained, now training 1 other.
- PRESENT: Ghana - To commence Jan. 1, 2026

- **MORE(!) FUTURE COEDN PROGRAMS:**
- GHANA
- MALAWI
- ZIMBABWE
- MOZAMBIQUE



*... FUTURE TRAINING CENTERS TO BE ESTABLISHED  
WITH VTT GLOBAL GRANTS- TO BE FUNDED!*



D5000 award for "Excellence in International Service" 2023

# Children's Orthopedics Education for Developing Nations



*ASANTE SANA!*

Thank You!