

COOL Paediatrics Course

Advanced Orthopaedics Course: 26-29 May 2014

CURE Ethiopia Children's Hospital & Black Lion Hospital

Addis Ababa, Ethiopia

COURSE REPORT



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Executive Summary

CURE Ethiopia Children's Hospital and Black Lion Hospital co-hosted the second COSECSA advanced paediatric orthopaedics course in Addis Ababa, Ethiopia, in May 2014 for 26 local surgeons. This introductory course provided a unique overview of treatment of children's musculoskeletal impairments in sub-Saharan Africa, and was delivered by an experienced international faculty team from Ethiopia, Malawi, Canada, USA and the UK through a combination of interactive lectures and a variety of practical workshops. This course was held as part of the COSECSA Oxford Orthopaedic Link (COOL) programme, a three-year collaboration between the College of Surgeons of East, Central and Southern Africa (COSECSA) and the University of Oxford. The course was very well-received by the delegates, who were second, third and fourth year orthopaedic residents from the Black Lion Hospital as well as 4 consultant surgeons. Orthopaedic training in Ethiopia has expanded rapidly in recent years and, following the success of this course, the course faculty and partner organisations are keen to explore ways to work together on further supporting orthopaedic training in Addis Ababa.



Background

A key aim of the COOL programme is to improve standards of care for musculoskeletal impairment (MSI) and to increase the number of health workers trained in MSI care. Conservative estimates based on a prevalence survey in Rwanda are that there are over half a million children in the COSECSA countries with untreated MSIs (1). The common MSIs affecting children in the COSECSA region (sub-Saharan Africa) are congenital deformity such as club foot, developmental conditions such as angular limb deformity, and infections of bones and joints e.g. osteomyelitis. If untreated, these children are less likely to access education and employment, their families are more likely to be economically poor, and other studies have shown that these children have a low self-esteem and carry stigma related to their disability (2). A recent major COSECSA report on workforce capacity shows that capacity for MSI care in COSECSA countries is between 1 and 10% of that of the UK (3).

Objectives

This four day paediatrics course was aimed at postgraduate orthopaedic trainees and consultants at the main university teaching hospital in Addis Ababa, the Black Lion Hospital. The course programme was adapted from the first COOL Paediatrics course designed by Mr John Cashman, which was first run at the Beit CURE International Hospital in Malawi in July 2013. The programme focused on a problem-based approach to paediatric conditions, with each module including clinical examination, different diagnostic investigations and surgical approaches. Techniques and approaches that were less familiar to the trainees were introduced, such as study of gait and use of circular frames. The course also aimed to improve confidence and refresh skills in treatment of common conditions such as clubfoot.

Key Objectives:

1. To provide an overview of paediatric orthopaedic conditions
2. To develop understanding of concepts of treatment and management, and common pitfalls
3. To develop ability in diagnosing paediatric orthopaedic conditions and in forming strategies for dealing with these pathologies



Faculty

Dr. Andrew Howard MD MSc FRCS	Associate Professor, Department of Orthopaedic Surgery, The Hospital for Sick Children, Toronto, Canada Areas of specialist interest: Paediatric orthopaedic surgery, spinal surgery
Mr. Andrew Wainwright MB ChB FRCS (Tr+Orth)	Consultant Orthopaedic Surgeon, Nuffield Orthopaedic Centre, Oxford, UK Areas of specialist interest: Paediatric orthopaedic surgery, deformity correction
Dr. Ataklitie Baraki MD FCS-ECSA	Assistant Professor of Surgery AAU Plastic and Reconstructive Surgeon, ALERT Hospital Areas of specialist interest: Congenital hand anomaly
Dr Bahiru Bezabih	Consultant Orthopaedic Surgeon Department Head Orthopaedic and Traumatology Department, Black Lion Hospital
Dr. Birhanu Ayana	Consultant Orthopaedic Surgeon, Black Lion Hospital Areas of specialist interest: Neglected clubfoot
Dr. Einar Eriksen	Plastic Surgeon, Myungsung Christian Medical Centre, Addis Ababa, Ethiopia
Mr. Fergal Monsell MB BCh MSc PhD FRCS (Tr+Orth)	Consultant Pediatric Orthopaedic Surgeon at the Bristol Royal Hospital for Children, UK. Area of specialist interest: Paediatric limb reconstruction surgery
Dr. John Cashman BM FRCS (Tr+Orth)	Orthopaedic Surgeon, Beit-CURE International Hospital, Blantyre, Malawi Areas of specialist interest: Paediatric orthopaedic surgery, deformity correction
Dr. Mesfin Etsub Kassahun FCS-ECSA	Consultant Orthopaedic Surgeon, CURE Hospital, Addis Ababa Areas of interest: Paediatric orthopaedics, trauma and arthroplasty
Dr. Rick Gardner FRCS (Tr+Orth) (Course Organiser)	Consultant Orthopaedic Surgeon, CURE Hospital, Addis Ababa Areas of interest: DDH, deformity correction

Dr. Scott Kaiser MD	Paediatric Orthopaedic Fellow, The Hospital for Sick Children, Toronto, Canada Area of specialist interest: Deformity correction, gait disorders
Dr Tewodros Tilahun Zerfu FCS-ECSA	Consultant Orthopaedic Surgeon, and Residency Director CURE Hospital. Addis Ababa Areas of interest: congenital hand deformities, neglected CTEV, DDH and sports medicine
Mr. Tim Nunn FRCS (Tr+Orth)	Pediatric Orthopaedic Surgeon, Sheffield Children's Hospital, UK Area of specialist interest: Paediatric limb reconstruction surgery
Dr. Yegremu Kebede MD FCS-ECSA	Plastic and Reconstructive Surgeon, ALERT Hospital Areas of specialist interest: Congenital hand anomaly



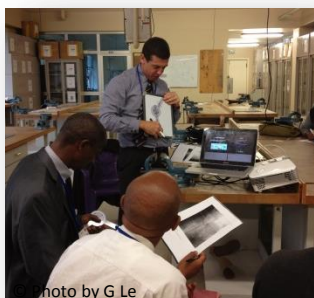
Participants

The course was attended by 26 Ethiopian surgeons and postgraduate surgical trainees (2nd-4th years) from the Black Lion Hospital, Addis Ababa:

Dr	Tekalign	Tsegaye
Dr	Sham	Abraham
Dr	Solomon	Goshu
Dr	Ephrem	Gebrehana
Dr	Esubalew	Abebe
Dr	Habtamu	Bayisa
Dr	Mamo	Deksisa
Dr	Theodros	Daba
Dr	Tinsae	H/Michael
Dr	Yosef	Zekarias
Dr	Zerihun	Tamrat
Dr	Adisu	Chala
Dr	Biruh	Wubishet
Dr	Leul	Merid
Dr	Yared	Solomon
Dr	Milkias	Tsehay
Dr	Getnet	Asnake
Dr	Zeynu	Zuber
Dr	Yiheyis	Feleke
Dr	Tilahun	Desta
Dr	Zegene	Taye
Dr	Geletaw	Tessema
Dr	Worku	Belay
Dr	Daniel	Terferi G/Sellase
Dr	Wondimu	Wolde
Dr	Birhanu	Ayana

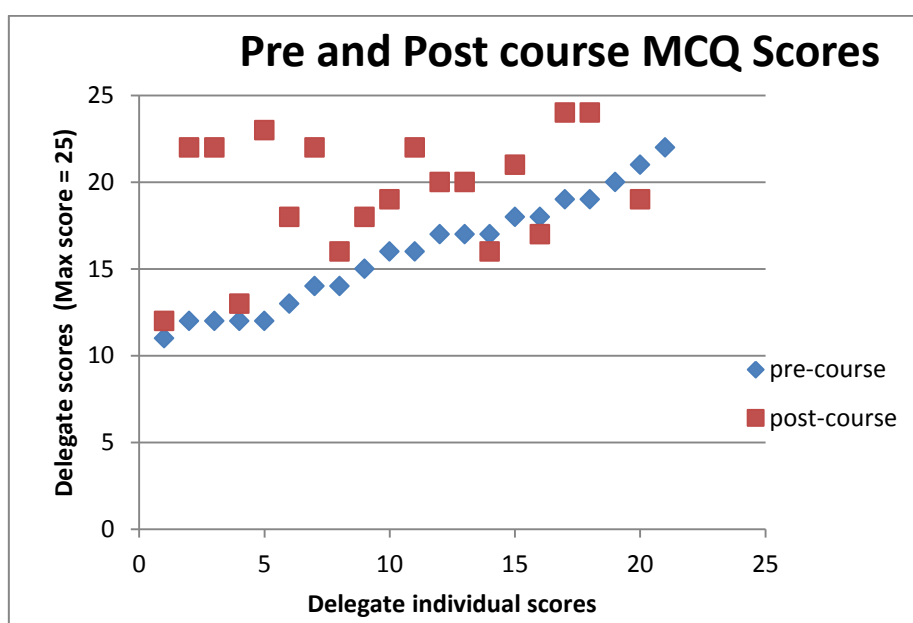
Activities

Morning lectures were held in the chapel at the CURE Ethiopia Children's Hospital. Dr Bahiru Bezabih (Head of Department of Orthopaedics and Traumatology, Black Lion Hospital) officially opened the course on the first morning and gave a warm welcome to the visiting faculty. Dr Biruk Wamisho gave a welcoming address on the second day of the course on behalf of the Ethiopia Society for Orthopaedics and Traumatology. In the afternoons, the delegates were divided into four groups for rotating practical sessions at the orthopaedics department at the Black Lion Hospital and the anatomy laboratory at the College of Health Sciences, Addis Ababa University (see Appendix 2 for teaching schedule). Certificates of attendance were awarded on the final day of the course by Dr Bahiru, followed by a celebratory coffee ceremony organised by the trainees.



Assessment

At the start and end of the course participants completed a multiple choice questionnaire (MCQ) written by the course faculty to assess baseline and increase in knowledge of paediatric orthopaedic conditions and treatment.



	Pre-course percentage	Post-course percentage	Percentage change between pre and post-course scores
Mean	46%	78%	16%
Median	54%	80%	12%
Max.	88%	96%	44%
Min.	44%	48%	-8%

The faculty team awarded prizes to Dr Yared Solomon for the most improved post-course score in the MCQ and to Dr Ephrem Gebrehana for the most significant contribution from a delegate to the week.



Evaluation

All participants and faculty were invited to complete a course evaluation on the final day. The results are summarised as follows:

1. What was your previous experience of paediatric orthopaedics before this course?

- Attended paediatric orthopaedic teaching **Yes: 11 / No: 3**
- Assisted with paediatric orthopaedic surgery
Regularly: 2 / Sometimes: 12 / Rarely: 1 / Never: 0
- Performed paediatric orthopaedic surgery
Regularly: 1 / Sometimes: 9 / Rarely: 5 / Never: 1

2. Which 3 teaching sessions did you find **most useful**?

	<i>Please choose</i>
	3
Day 1: Hip (DDH, PFFD, Perthes, SUFE)	11
Day 1: Congenital lower limb deformity	3
Day 1 workshops: examination of a child, blade plates, cadaveric workshops on hip approaches & epiphysiodesis	8
Day 2: Deformity correction	11
Day 2: Infection and bone fragility	3
Day 2 workshops: elbow anatomy, LLD, Taylor Spatial Frame, surgical knee approaches	4
Day 3: Neurology, CP, Cavus foot, Dropped foot, metabolic bone disease	3
Day 3: spine, tumours, fractures, trauma	1
Day 3 workshops: Gait, burn contracture reconstruction, principles of orthotics	8
Day 4: Clubfoot, burns	3
Day 4: Congenital hand	1
Day 4 workshops: Ponseti technique practice, tenotomy procedure, anatomy of surgical approaches	5

3. What have you **most enjoyed** about the course?

- Teaching +
- Practical sessions +
- Interactive teaching method
- 'All the trainers taught us their experience – so interesting' ++++++
- Cadavers
- The management principles of individual problems.
- Well organised and on time ++
- Knowledgeable faculty +++
- Impressed by the faculty

4. What is the **most useful/interesting** thing you have learned?

- Theory and practice +
- There are multiple options for treatment and guidance for how to choose
- Practical sessions +++++
- Cadavers, prostheses
- Ponseti technique for neglected clubfoot
- Deformity ≠ disability; structure ≠ function ++
- The goal of treatment of the problem is to maximise function.
- Deformity correction and gait analysis
- Using conservative and or surgical treatments in multidisciplinary approach

5. Were there any sessions that should **be changed/omitted**?

- No +++++
- All were interesting and worth repeating +
- A little bit overcrowded
- More visuals/practical skills for congenital abnormality sessions.

6. How could the course **be improved**?

- Looking at practical examples in doing osteotomy
- More demonstration of deformity correction
- Bring the Taylor Spatial Frame to Ethiopia to demonstrate
- Keep it up, it is good teaching methodology +
- Focusing on most common conditions in the limited time available
- Fantastic course, keep it up
- To be held in our country every year so that every orthopaedic resident will be very good at paediatric orthopaedics.
- More time for practical sessions +
- The organisation was best and it was more interactive. The card play was also entertaining. The course is so lovely as it is but can be more elaborative if we can add fixations on models.

7. Would you **recommend** this course to your colleagues? **Yes: 19 / No: 0**

8. Would you be interested in attending **further paediatric orthopaedic courses**?

Yes: 19 / No: 0

Future planning

The course was very well-received by faculty and delegates and there is strong interest in developing this collaboration to run similar training courses in the future.



Acknowledgements

We would like to thank the excellent teaching faculty who gave so generously of their time. We are very grateful to the Black Lion Hospital, Addis Ababa University and CURE Ethiopia Children's Hospital for hosting this training, and very kindly allowing us to use their venues and facilities. Thank you to all who have supported the training and who have helped in its organisation and running, including Dr Bahiru Bezabih, Dr Biruk Wamisho, Dr Abebe Bekele, the Ethiopian Society for Orthopaedics and Traumatology, and COSECSA.

This course was funded through the COSECSA Oxford Orthopaedic Link (COOL) Project through the THET Health Partnership Scheme, which is funded by the UK Department for International Development. COOL is a multi-country partnership programme between the Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences (NDORMS) at the University of Oxford and the College of Surgeons of East Central and Southern Africa (COSECSA). The three-year project (2012–2015) combines research and training in primary trauma care and musculoskeletal impairment across ten sub-Saharan countries in the COSECSA region. It aims to meet the critical need for more health workers trained in treating serious injury and musculoskeletal impairment.



Report by

Dr. Rick Gardner, Course Organiser

Professor Chris Lavy, COOL Project Director

Grace Le, COOL Project Manager

June 2014

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2. Atijosan O, Rischewski D, Simms V, Kuper H, Lingana B, Nuhi A, Foster A, Lavy C, *A national survey of musculoskeletal impairment in Rwanda: prevalence, causes and service implications*. PLoS ONE. 2008 Aug 6;3(7):e2851.
3. *A review of surgical capacity and surgical education programmes in the COSECSA region*. Internal COSECSA document coordinated by Dr Mary Thompson

APPENDIX 1: Feedback from Participants

Continue having training regularly +++++

More training on other orthopaedic specialities ++

'I have enjoyed and learned a lot from this course. It makes me consider specialising in paediatric orthopaedics as a sub-speciality'

'Thank you all of the team for sharing with us your experience and it will help me and my college to help patients.'

'I suggest such kind of refreshing and thoughtful course should continue.'

'I am very lucky to get this chance because it is a life changing training. Continue. God bless you!!'

'The logistics and the contents of the course were second to none. It would be nice if you organise more courses in our country. It was a great pleasure to have attended this course.'

'The coordination was so remarkable.'

'Thank you very much all the faculty and cool paediatrics – it is really COOL!'

'Congratulation for those who coordinated the course – thank you.'

'It would have been better to have an extended course because we were poured with lots of information in a short period.'

'I would like to thank the organisers and faculty for preparing this important and interesting course. I wish you will prepare another course for us and my colleagues.'

'All the instructors were also so humble, experienced and interactive. I love the course so much.'

'You can't imagine how much I am attracted to paediatrics now.'



APPENDIX 2: Teaching Timetable

DAY 1 - Monday 26th May

7.30-8.00	Registration at CURE Hospital	<i>Lectures - auditorium (Chapel) unless otherwise stated</i>
8.00-8.30	Introductions and Welcome	Rick Gardner Dr Bahiru
8.30 – 9.00	MCQ	<i>Chapel</i>
Hip		
9.00 - 9.30	DDH	Andy Wainwright
9.30 – 10.00	PFFD	Fergal Monsell
10.00-10.30	Perthes/ SUFE	Tim Nunn
10.30 – 11.00	Tea Break	
TIBIA and KNEE		
11.00 – 11.30	Hip and femoral fractures	Scott Kaiser
11.30 – 12.00	Tibial and Fibular Hypoplasia	Fergal Monsell
12.00- 12.20	Congenital Pseudarthrosis of Tibia	John Cashman
12.20-12.50	Traumatic injury to the immature knee	Mesfin Metsub
12.50 – 2.00	Lunch and transport to the Black Lion Hospital	

2.00pm – 5.00pm	4 Rotating Practical Groups	
40 min each	Video Workshop A – and discussion	
A	<ul style="list-style-type: none"> - Spica application - Epiphysiodesis video - Ganz surgical hip dislocation 	Tim Nunn Mesfin Metsub
2.00-2.40pm		
B	Cadaveric / Video Workshop B Surgical approaches, indications and tech. Hip <ul style="list-style-type: none"> - Anterior - Posterior approach - Lateral approach prox femur 	Andrew Howard Fergal Monsell Scott Kaiser
2.40-3.20pm		
3.20-3.40pm	Tea	
C	Workshop C	
3.40-4.20pm	Examination of a child- how I do it!	John Cashman
D	Workshop D	
4.20-5.00pm	Planning proximal femoral corrective osteotomy with blade plate	Andy Wainwright
5.00-5.15pm	Questions and Close	<i>Resident room</i>

Day Two Tuesday 27th May

8.00-8.10	Introduction and Recap	
Infection and bone fragility		
8.10-8.40	- Osteomyelitis and septic arthritis: Pathology and management	Tewodros Tilahun
8.40-9.10	- Management of chronic osteomyelitis, deformity and bone loss	John Cashman
9.10-9.40	- Management of the post septic hip	Andy Wainwright
9.40-10.10	- Osteogenesis imperfecta	Andrew Howard
10.10-10.30	Tea Break	
DEFORMITY CORRECTION		
10:30-11:00h	Analysis of Deformity	Fergal Monsell
11.00 – 11.30	Principles of corrective osteotomies	Andy Wainwright
11.30 – 12.00	Leg length discrepancy prediction of LLD Growth modulation and epiphysiodesis	Tim Nunn
12:00 – 13:30h	Lunch and transfer to the Black Lion Hospital	ALL

1.30pm – 4.30pm	4 Rotating Practical Groups	
40 min each		
A <i>1.30-2.10pm</i>	Workshop A – and discussion - The Taylor Spatial Frame: an introduction	Fergal Monsell
B <i>2.10-2.50pm</i>	Cadaveric Workshop B Surgical anatomy of the elbow	Tewodros Tilahun Mesfin Etsub
<i>2.50-3.10pm</i>	Tea	
C <i>3.10-3.50pm</i>	Workshop C Calculation of LLD at maturity, planning hemiepiphysiodesis/growth modulation	Tim Nunn Scott Kaiser
D <i>3.50-4.30pm</i>	Cadaveric Workshop D Posterior and postero-lateral approach to the knee	John Cashman Rick Gardner
4.30- 5.00pm	Questions and Close	<i>Resident room</i>

Day Three Wednesday 28th May

08:00-08.10	Recap and introduction	
08:10 – 08:40	Scoliosis and Kyphosis	Andrew Howard
08:40 – 09:10	Spina Bifida and cord tether	Tim Nunn
09.10 – 09.50	Metabolic Bone Disease	Andrew Howard
09.50-10.15	Tea Break	
10:15-10:40	Management of supracondylar and lateral condyle fractures of the distal humerus	Scott Kaiser
10:40 – 11.00	Traumatic upper limb injury- Monteggia and Galeazzi	John Cashman
11.00-11.30	Obstetric brachial plexus injury	Scott Kaiser
Neurology		
11.30 – 11.50	Cerebral Palsy types and management of spasticity	Tim Nunn
11.50 – 12.20	Cerebral Palsy management strategies Diplegia, Hemiplegia, Total body, Athetoid / dyskinesic	Andy Wainwright
12.20-12.40	Neurological foot: Cavus foot – differential diagnosis	Tewodros Tilahun
12.40 – 1.00pm	Dropped foot, Aetiology & Management	John Cashman

1pm – 2.30pm	Lunch and transfer to the Black Lion Hospital	
2.30pm – 5.15pm	4 Rotating Practical Groups	
30 min each A <i>2.30-3.00pm</i>	Workshop A – Burn contracture reconstruction: presentation of simple flaps- groin, abdo and skin grafting technique	John Cashman
B <i>3.00-3.30pm</i>	Workshop B Video – normal Gait – simple video appraisal	Tim Nunn
<i>3.00 – 3.30pm</i>	Tea	
C <i>4.00-4.30pm</i>	Workshop C Video Abnormal Gait – appraisal using video and management strategies	Andy Wainwright
D <i>4.30pm-5.00pm</i>	Workshop D principles of orthotics / case discussions	Andrew Howard Scott Kaiser
<i>5.00pm-5.15pm</i>	Questions and Close	<i>Resident room</i>

Day Four Thursday 29th May

Upper Limb		
08:00-08:10	Recap and introduction	
08.10 – 08.40	Clubfoot	Andrew Howard
08.40 – 09.10	Ponseti management of clubfoot	Tim Nunn
09.10-09.30	Management of neglected clubfoot: non-operative	Dr Birhanu Ayana
09.30-10.00	Management of neglected clubfoot: operative	Tewodros Tilahun
10.00 – 10.30	Tea	ALL
10.30- 11.10	Burn Reconstruction	Dr Einar Eriksen
Congenital Hand		
11.10 – 11.40	Congenital Hand deformity accessory digits, syndactyly, camptodactyly trigger thumb	Dr Ataklitie Baraki
11.40- 12.00	Radial club hand	Dr Yegeremu Kebede
12.00 – 13.30	Lunch and transfer to the Black Lion Hospital	

1.30pm – 3.30pm	4 Rotating Practical Groups	
30 min each A	Workshop A – Cadaveric and Video Workshop A – surgical approaches - PMR / Cincinnati - Triple AD - Lateral Wedge and Dorsal Wedge Tarsectomies	Tewodros Tilahun Mesfin Etsub
B	Cadaveric and Video Workshop B – surgical Approaches - Gastrocnemius Recession / TAL Posterior Approach to knee	Rick Gardner Scott Kaiser
C	Workshop C Ponseti Video, Pirani Scoring, Tenotomy procedure and bracing	Andrew Howard Tim Nunn
D	Workshop D Ponseti practice / roles / hand positions	Dr Birhanu Dr Geletaw Dr Worku
3.30-4.00pm	TEA	
CONCLUSION		
4.00 – 4.30	Close and presentation of certificates	<i>Resident room</i>

Rotation of Afternoon Groups

<i>Group 1</i>	<i>Group 2</i>	<i>Group 3</i>	<i>Group 4</i>
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>B</i>	<i>A</i>	<i>D</i>	<i>C</i>
<i>TEA</i>			
<i>C</i>	<i>D</i>	<i>A</i>	<i>B</i>
<i>D</i>	<i>C</i>	<i>B</i>	<i>A</i>