



COSECSA Oxford Orthopaedic Link (COOL)

## Advanced Orthopaedics Course in Paediatrics

8-11 July 2013, Beit CURE International Hospital, Blantyre, Malawi

### COURSE REPORT



## Executive Summary

Thirty-two surgeons and clinical officers from Ethiopia, Kenya, Malawi, Tanzania, Uganda, Zambia and Zimbabwe attended a four-day paediatric orthopaedics course on 8-11 July 2013 at the Beit CURE International Hospital (BCIH), an orthopaedic teaching and research centre in Malawi. The course was part of the COSECSA Oxford Orthopaedic Link (COOL) Programme, a UKAID funded partnership 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). A series of lectures and practical workshops focusing on treatment and management of children's orthopaedic conditions was delivered by a team of local and international faculty from BCIH, Queen Elizabeth Central Hospital (QECH), University of Malawi College of Medicine and the Nuffield Orthopaedic Centre.

## Background

A key aim of the COOL programme is to improve standards of care for musculoskeletal impairment (MSI) and to increase the number of healthworkers trained in MSI care. Conservative estimates based on a prevalence survey in Rwanda is 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 are

congenital deformity such as club foot, developmental conditions such as angular limb deformity, and infections of bones and joints eg 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 TMSI care in COSECSA countries is between 1 and 10% of that of the UK (3).



Untreated clubfoot

1. Alavi Y, Jumbe V, Hartley S, Smith S, Lamping D, Muhit M, Masiye F, Lavy C, *Indignity, Exclusion, Pain And Hunger: The Impact Of Musculoskeletal Impairments In The Lives Of Children* In Malawi Disabil Rehabil. 2012 Mar. doi: 10.3109/09638288.2012.662260
2. Atijosan O, Rischewski D, Simms V, Kuper H, Linganwa 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

## Course Objectives

This four day course was aimed at postgraduate orthopaedic trainees or orthopaedic consultants in the COSECSA region. The course content was designed by Dr John Cashman (Consultant Orthopaedic Surgeon at BCIH) to focus 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:

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

## Course Faculty

Professor Nyengo Mkandawire	Professor of Orthopaedics, Malawi College of Medicine Head of Department, QECH, Blantyre, Malawi
Dr Jes Bates Dr Tilinde Chokocho	Queen Elizabeth Central Hospital, Blantyre, Malawi
Dr John Cashman Dr Nick Lubega Dr Samuel Maina Dr Linda Chokocho Dr Jim Turner	Beit CURE International Hospital, Blantyre, Malawi
Mr Hemant Pandit Mr David Stubbs Mr Andrew Wainwright	Nuffield Orthopaedic Centre, Oxford, UK
Mr Tim Nunn	Sheffield Children's Hospital, UK
Miss Marie-Caroline Nogaro	Milton Keynes General Hospital, UK

## Course participants

There were 32 course participants (mostly orthopaedic trainees) from the following seven COSECSA countries:

Ethiopia	Black Lion Hospital, Addis Ababa
Kenya	Eldoret
Malawi	Kamuzu Central Hospital, Lilongwe; QECH ; BCIH
Tanzania	Kilimanjaro Christian Medical Centre; Muhimbili Orthopaedic Institute, Dar es Salaam
Uganda	Mulago Hospital
Zambia	University Teaching Hospital, Lusaka
Zimbabwe	Harare Central Hospital; Parirenyatwa Hospital

Several participants were also part of the COOL Clinical Fellow (approx. 6 months) programme at four paediatric orthopaedic teaching hospitals in the region.

## Course Assessment

At the start and end of the course participants completed a thirty-question multiple choice questionnaire written by the course faculty to assess baseline and increase in knowledge of paediatric conditions and treatment.

	<b>Range</b>	<b>Median</b>	<b>Mean</b>
Pre-course	11	13/25	13/25
Post-course	16	21/25	20/25

There was an average 27% increase between the pre and post-MCQ scores.

## Summary of Activities

The course was held at the Beit CURE International Hospital, Blantyre, Malawi and the University of Malawi, College of Medicine. Day 1 began with a welcome from Dr Cashman (BCIH) and Grace Le (COOL Project), and introductions from faculty and participants. The programme for each day consisted lectures in the morning and four practical workshops in the afternoon with participants rotating through each workshop (See Appendix 2 for teaching programme). During the course, several participants also presented case studies for discussion of challenging paediatric cases that they had encountered in their practice.

Participants heard an overview from Myroslava Tataryn (London School of Hygiene and Tropical Medicine) of a related COOL co-funded research project based at BCIH – a Key Informant Methodology (KIM) study into the prevalence of children’s disability, which will be used to inform future planning for treatment and services.

In the final session, prizes were awarded to Dr Mwera Mawindo (Malawi) and Dr Felix Mrita (Tanzania) for their achievements in the course assessments, and all participants received a certificate of attendance. Afterward, Dr Wakisa Mulwafu, COSECSA Country Representative for Malawi, gave the closing address.



**Ponseti workshops for treatment of clubfoot**



## Course Evaluation

The faculty reviewed daily course feedback forms and Dr Cashman led a faculty debrief on the final day after the last session, where the final feedback forms and assessments were reviewed. It was agreed that the course's educational objectives outline above were largely fulfilled and that it had been a useful opportunity for orthopaedic surgeons across the region to connect with each other, particularly in the afternoon workshops where participants were in smaller mixed groups. Overall, the lectures and workshops received excellent feedback from the participants. When invited to comment on improvements to the course, they suggested the following:

Additional topics:	Flaps, tumours, pelvic injuries and compartment syndrome.
Alternative teaching methods:	Saw bone practicals, flaps workshop, procedure videos, pre-course reading, live surgery, more dissection, homework

(See Appendix 1 for additional feedback from trainees.)

The faculty observed that the participants' high level of commitment, engagement with an ambitious range of content, enthusiasm to share learning, and punctuality had all helped the course to go well. The faculty discussed ideas for future courses, including more use of videos, more problem-based learning, the additional topics/teaching methods suggested by the trainees, and ways of assessing participants' increased confidence and competence (in addition to the knowledge-based MCQs).



## Additional Activities

During the paediatrics course, UK team members also visited two further COOL projects in the area: a new trauma registry at QECH, and a retrospective study of the burden of trauma in district hospitals. Course participants also contributed towards a COOL Project capacity survey of trauma and musculoskeletal impairment services and facilities in the COSECSA countries, led by Dr Linda Chokotho. It is expected that the results of this survey will be presented at the COSECSA AGM December 2013.

## Future planning

At least two further COOL advanced orthopaedics courses are planned for 2014, a spine course and a hip and knee course, although the dates and venues are yet to be confirmed. Following interest from senior surgical faculty, a repeat of the COOL paediatric course elsewhere in the COSECSA region is being discussed.

## Acknowledgements

First, we would like to thank the excellent teaching faculty who gave so generously of their time. We are very grateful to the Beit CURE International Hospital, Blantyre and the University of Malawi College of Medicine for co-hosting this training and for the generous use of venues and facilities. Thank you also to Malawi Sun Hotel for their support for this training through co-sponsorship of the course. Finally, thank you to all who have supported the training and who have helped in its organisation and running, including Jonathan Genda, Sunganani Mbewe, Medha Pandit, Gargi Pandit and Sarah Nogaro.

**Professor Christopher Lavy, Mr Hemant Pandit, Dr John Cashman, Grace Le**

**August 2013**

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This paediatric orthopaedics course was part of the COSECSA Oxford Orthopaedic Link (COOL) programme, a three-year Health Partnership Scheme programme to strengthen trauma and orthopaedics training and research in East, Central, and Southern Africa. It is funded by the UK Department for International Development for the benefit of the UK and partner country health sectors.

## Appendix 1: Course Feedback from Participants

**“We really had good time in Blantyre. The course was very relevant to my day to day practices. For sure the course in advanced paediatrics has changed completely my way of handling kids with orthopaedic problems. My institute thanks COOL for giving us such a great course freely.”**

**“I am pleased to pass our sincere thanks for a nice Advanced paediatric orthopaedic course and the preparation which made it possible and Well done! We are very grateful to you and all committee for this wonderful training. It is my hope this training has changed our routine working to modern and right way of managing children with orthopaedic conditions.”**

**“We would like to thank you for the wonderful course we had. We learnt things that are difficult to understand by reading books, it was indeed practical and pertinent to our practice. We really appreciate the well organized organizers!”**

**“Thanks for the knowledge gained and platform to meet different people and share experience.”**

**“Thank you for a wonderful and well organised educative seminar.”**

**“Thanks for the opportunity in Malawi, it was inspiring for us.”**

## Appendix 2: Teaching Programme

### COSECSA Oxford Orthopaedic Link (COOL) Paediatric Orthopaedic Course

Beit CURE International Hospital, Blantyre, Malawi, 8<sup>th</sup> – 11th July 2013

<b><u>DAY 1</u></b>	<b>Monday 8<sup>th</sup> July</b>
<b>7.30-8.00</b>	<b>Registration</b>
<b>8.00-8.30</b>	<b>Introductions and Welcome</b>
<b>8.30 – 9.00</b>	<b>MCQ</b>
<b>9.00 - 9.30</b>	<b>Clubfoot</b>
<b>9.30 – 10.00</b>	<b>Ponseti Treatment of Clubfoot</b>
<b>10.00-10.30</b>	<b>Management of relapse / recurrent Clubfoot and complications</b>
<b>10.30 – 11.00</b>	<b>Tea Break</b>
<b>11.00 – 11.30</b>	<b>Tibial and Fibular Hypoplasia</b>
<b>11.30 -12.00</b>	<b>Tibial Kyphosis and Congenital Pseudoarthrosis of Tibia</b>
<b>12.00-12.20</b>	<b>Anterior knee pain and patellofemoral maltracking</b>
<b>12.20-12.50</b>	<b>Traumatic injury to the immature knee</b>
<b>12.50 – 13.30</b>	<b>LUNCH</b>
<b>1.30pm – 4.30pm</b>	<b>4 Rotating Practical Groups</b>
<b>40 min each</b> <b>A</b> <i>1.30-2.10pm</i>	<b>Cadaveric and Video Workshop A – surgical approaches</b> <ul style="list-style-type: none"> <li>- PMR / Cincinnati</li> <li>- Triple AD</li> <li>- Lateral Wedge and Dorsal Wedge Tarsotomies</li> </ul>
<b>B</b> <i>2.10-2.50pm</i>	<b>Cadaveric and Video Workshop B – surgical Approaches</b> <ul style="list-style-type: none"> <li>- Gastrocnemius Recession / TAL</li> <li>- Posterior Approach to knee</li> </ul>
<i>2.50-3.10pm</i>	<b>Tea</b>
<b>C</b> <i>3.10-3.50pm</i>	<b>Workshop C</b> <b>Ponseti Video, Pirani Scoring, Tenotomy procedure and bracing</b>
<b>D</b> <i>3.50-4.30pm</i>	<b>Workshop D</b> <b>Ponseti practice / roles / hand positions</b>
<b>4.30- 5.00pm</b>	<b>Questions and Close</b>



<b>Day Two</b>	<b>Tuesday 9<sup>th</sup> July</b>
8.00-8.10	<b>Introduction and Recap</b>
8.10-8.30	<b>Congenital Hip Problems</b> <ul style="list-style-type: none"> <li>- PFFD / femoral hypoplasia</li> <li>- DDH</li> </ul>
8.30-9.00	<b>Developmental Hip Problems</b> <ul style="list-style-type: none"> <li>- Perthes</li> <li>- SUFE</li> </ul>
9.00 – 9.30	<b>Trauma</b> <ul style="list-style-type: none"> <li>- Hip fractures and Femoral fractures</li> </ul>
9.30 – 10.00	<ul style="list-style-type: none"> <li>- OI and fragility fractures</li> <li>- NAI</li> </ul>
10.00 – 10.30	<b>Tea Break</b>
10:30-11:00h	<b>Analysis of Deformity</b>
11.00 – 11.30	<b>Principles of corrective osteotomies</b>
11.30 – 12.00	<b>Leg length discrepancy</b> prediction of LLD Growth modulation and epiphysiodesis
12:00 – 13:00h	<b>LUNCH</b>
<b>1.30pm – 4.30pm</b>	<b>4 Rotating Practical Groups</b>
<b>40 min each</b>	
<b>A</b>  <i>1.30-2.10pm</i>	<b>Video Workshop A – and discussion</b> <ul style="list-style-type: none"> <li>- Spica application</li> <li>- Epiphysiodesis video</li> </ul>
<b>B</b>  <i>2.10-2.50pm</i>	<b>Cadaveric / Video Workshop B</b> <b>Surgical approaches, indications and tech.</b> <b>Hip</b> <ul style="list-style-type: none"> <li>- Anterior</li> <li>- Posterior approach</li> <li>- Lateral approach prox femur</li> </ul>
<i>2.50-3.10pm</i>	<b>Tea</b>
<b>C</b>  <i>3.10-3.50pm</i>	<b>Workshop C</b> <b>Calculation of LLD at maturity</b> <b>planning hemiepiphysiodesis / growth modulation</b>
<b>D</b>  <i>3.50-4.30pm</i>	<b>Workshop D</b> <b>Planning proximal femoral corrective osteotomy with blade plate</b>
<i>4.30- 5.00pm</i>	<b>Questions and close</b>

<b><u>Day Three</u></b>	<b>Wednesday 10<sup>th</sup> July</b>
08:00-08.10	<b>Recap and introduction</b>
08:10 – 08:50	<b>Scoliosis and Kyphosis</b>
08:50 – 09:20	<b>Spina Bifida and cord tether</b>
09.20 – 09:50	<b>Discitis and TB</b>
10:00 - 10:30	<b>Tea Break</b>
10:30-10:50h	<b>Osteomyelitis Septic Arthritis pathology and acute management</b>
10:50 – 11.20	<b>Management of Chronic Osteomyelitis, deformity and diaphyseal bone loss</b>
11.20-11.50	<b>Management of post septic hip</b>
11.50 – 12.10	<b>Cerebral Palsy types and management of spasticity</b>
12.10 – 12.30	<b>Cerebral Palsy management strategies Diplegia, Hemiplegia, Total body, Athetoid / dyskinetic</b>
12.30-12.45	<b>Neurological foot: Cavus foot – differential diagnosis</b>
12.45 – 13.00	<b>Dropped foot, Aetiology &amp; Management</b>
13:00 – 14:00h	<b>LUNCH</b>
<b>2pm – 4.30pm</b>	<b>4 Rotating Practical Groups</b>
<b>30 min each</b> <b>A</b> <i>2.00-2.30pm</i>	<b>Workshop A – Examination of a child – how I do it !</b>
<b>B</b> <i>2.30-3.00pm</i>	<b>Workshop B Video – normal Gait – simple video appraisal</b>
<i>3.00 – 3.30pm</i>	<b>Tea</b>
<b>C</b> <i>3.30-4.00pm</i>	<b>Workshop C Video Abnormal Gait – appraisal using video and management strategies</b>
<b>D</b> <i>4.00-4.30pm</i>	<b>Workshop D principles of orthotics / case discussions</b>
<i>4.30 – 5.00pm</i>	<b>Questions and close</b>

<b><u>Day Four</u></b>	<b>Thursday 11<sup>th</sup> July 2013</b>
08:00-08:10	<b>Recap and introduction</b>
08.10 – 08.40	<b>Management of supracondylar and lateral condylar fractures of the distal humerus</b>
08.40 – 08.55	<b>Traumatic UL injury Monteggia and Galeazzi</b>
08.55 – 09.10	<b>Obstetric Brachial Plexus injury</b>
09.10 - 09.40	<b>Congenital Hand deformity</b> accessory digits, syndactyly, camptodactyly trigger thumb
09.40-10.00	<b>Radial Clubhand</b>
10.-00 – 10.30	Tea
10.30- 10.50	<b>Acute assessment and resuscitation</b>
10.50-11.20	<b>Management of established contractures</b>
11.20 – 11.50	<b>a practical guide to diagnosis and management</b>
11.50- 12.00	<b>Questions</b>
12.00 – 13.00	<b>LUNCH</b>
<b>1.30pm – 3.30pm</b>	<b>4 Rotating Practical Groups</b>
<b>30 min each</b>	
<b>A</b>	<b>Presentation of simple flaps – groin, abdo and skin grafting technique</b>
<b>B</b>	<b>Cadaveric surgical anatomy of elbow</b>
<b>C</b>	<b>Workshop A – Management of Supracondylar fracture of elbow video of X k-wiring</b>
<b>D</b>	<b>MCQ</b>
<b>4.00 – 4.30pm</b>	<b>Close and presentation of certificates</b>