

Value for Money of Health Partnerships: Case Study of the COSECSA Oxford Orthopaedic Link

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Introduction

Value for money (VfM), the best use of resources to deliver the desired impact,¹ is increasingly expected of international development programs. The purpose of VfM is to better understand and articulate costs and results in order to make evidence-based programming choices.²

This case study documents the VfM of a health partnership funded by the United Kingdom Department for International Development (DFID) through the [Health Partnership Scheme \(HPS\)](#)³ managed by the Tropical Health and Education Trust (THET). The multi-country partnership included in this case study was selected by THET from the 86 health partnerships funded since 2012.

Background to Partnership

The [COSECSA Oxford Orthopaedic Link \(COOL\)](#) was formally formed between the Nuffield Department of Orthopaedics, Rheumatology and Musculoskeletal Sciences at the University of Oxford and the College of Surgeons of East Central and Southern Africa (COSECSA) in 2012. The COSECSA training committee had been investigating how to improve standards and capacity for care of trauma and musculoskeletal impairment (TMSI) in the region, and approached the University of Oxford, who they had previously delivered joint surgical trainings and a research project with, to apply for HPS funding.

COOL was designed based on prior research in COSECSA countries showing the large number of children suffering from the effects of untreated or badly treated trauma as well as other non-trauma related, musculoskeletal impairments, and the resource and human capacity gaps to deliver appropriate TMSI care.

The aims of COOL are to increase the:

- **Capacity to manage care** of children and adults with TMSI
- **Profile** of TMSI treatment needs nationally and globally
- **Capacity of COSECSA** to improve and maintain standards and care

The three aims of COOL were to be achieved through:

- **Primary Trauma Care (PTC)** training courses for clinical hospital staff
- **Short courses** in advanced orthopaedics for surgeons and trainee surgeons
- **Clinical fellowships** in paediatric orthopaedics for trainee surgeons
- **Research** into TMSI capacity and needs in East, Central and Southern Africa

Other organisations involved in COOL include the UK based [Primary Trauma Care Foundation](#) who coordinate the PTC training courses, and four hospitals in Ethiopia, Kenya, Malawi, Zambia operated by [CURE international](#) who host the clinical fellowships in paediatric orthopaedics. The PTC and orthopaedic training courses are delivered by international and local volunteers, with the majority of international volunteers sourced from the UK National Health Service (NHS).

COOL commenced in April 2012 and was initially planned to run for three years; recently COOL received a one year no-cost extension and is now due to complete in March 2016.

Methods

A VfM framework was developed to measure VfM of COOL across four areas:⁴

- **Economy:** Getting the best value inputs
- **Efficiency:** Maximising the outputs for a given level of inputs
- **Effectiveness:** Ensuring that outputs deliver the desired outcomes
- **Equity:** Ensuring the benefits are distributed fairly

In order to measure the strength, and likely longevity, of the partnership, measures of social capital⁵ were also included in the framework under effectiveness.

Data on COOL relevant to VfM were first collected from existing project documentation including the original funding application, recent project narrative and financial reports. The documentation also included the assessment of COOL conducted by the [HLSP consulting group](#) as part of the wider progress review of HPS in 2014; this assessment involved site visits to six hospitals in three countries participating in COOL.

For this case study, information sourced from project documentation was supplemented by interviews conducted with nine individuals involved in COOL (see [acknowledgements](#)) and additional information provided by the Project Coordinator and COOL M&E Fellow. All interviews were conducted remotely via skype or phone by the case study author using a structured interview guide.

The information from all sources was compiled and analysed by the case study author. Analysis of project costs was based on the most recent financial report submitted to THET in January 2015; each budget line was assigned to different cost categories⁶ which were not mutually exclusive. Salary costs were apportioned by the self-reported estimated time spent on different type of project activities.⁷

Results

Economy

The total project budget for COOL is £1,400,000, with £972,850 (69%) reported as spent to date. **Direct costs**, inputs that are directly linked to project activities, account for 88% of COOL spending to date, with the indirect costs being limited to some office costs, project management and conferences.

As the project is led from University of Oxford, COOL utilises existing university procurement, travel and HR policies, as well as accesses preferential pricing from university-accredited preferred suppliers.

Cost Drivers

The largest cost driver for COOL are **travel costs**, accounting for 42% of spend to date with **capital costs**⁸ accounting for a relatively small 5% of spend. Capital costs have been lower than expected due to the delays in establishing a regional COSECSA office.

Donations and Other Cost Savings

Both project management costs and indirect spending have been minimised through the **donation** to COOL by the University of Oxford of office space and financial and administrative support. This is estimated by the project team to have a value of £150,964 to the project, equivalent to 11% of the total project budget. Additional donations to the project include donations and reduced prices from suppliers for medical training equipment, and provision of office space and field transport for the staff member based in Malawi.

There were substantial donations of **volunteer time** under COOL, including international volunteers to deliver the initial PTC training courses in each country and the orthopaedic short courses, local volunteers to continue PTC training in-country, and volunteers in Malawi trained as key informants to identify children with moderate and severe impairments as part of a prevalence study. This donation of time was only possible through the goodwill of the volunteers themselves and, in the case of the clinical trainers, the support of their organisations to allow them the time away to travel and conduct the trainings.

In addition to donations, other cost savings made during COOL include:

- Reducing the clinical fellowship stipend from the maximum set by COOL after discussions with host hospitals to ensure comparability with local stipends
- Borrowing training equipment from local hospitals where possible
- Combining project monitoring visits to visit multiple activities in-country in one trip
- Course trainers staying in modest accommodation, and sometimes sharing rooms
- Delaying the recruitment of the COSECSA training coordinator until the establishment and role of the COSECSA office is clear (still under discussion)

Leveraging Additional Funding

COOL has been able to leverage local funding to deliver eight PTC training courses in five countries (Malawi, Mozambique, Namibia, Uganda and Zambia) as well as an additional £95,770 from four international organisations to support the key informant study in Malawi.

Efficiency

Project Management

Spending on **project management**, mainly staff time, accounts for 9% of COOL spending for date. Interviewees reported that they felt this was fairly minimal given the breadth and wide geographical coverage of project activities, and that none of the staff paid by the project work full time on COOL. Spending on project management has been **minimised** by volunteers taking responsibility for in-country organisation and logistics of training courses; the use of communications technology such as email and skype has enabled the project to efficiently communicate across the multiple countries where project activities are taking place.

This apparent **efficiency of project management** is supported in the 2014 assessment of COOL by HLSP, which found overall the project was managed efficiently, and positive feedback on project management was received from project partners. It is near impossible to see how project management costs could be further reduced without reducing the reach and breadth of COOL activities.

Monitoring, Evaluation and Learning

Monitoring, evaluation and learning (MEL) accounts for 14% of COOL spending to date. This perhaps higher than expected allocation⁹ reflects the **investment in MEL** made by COOL, particularly in terms of the PTC courses. This includes strengthening the longer-term follow up of those receiving the PTC training to examine how many of those trained are able and still applying their new skills six months following the training, and the hosting of a PTC leaders conference to bring together lead PTC trainers from the COSECSA countries to share experiences and develop plans for how the PTC training will be sustained and mainstreamed into national health systems and training programs beyond the end of COOL. According to Charles Clayton, CEO of the Primary Trauma Care Foundation, the outcome measurements for the PTC training being undertaken by COOL are the best that have been ever undertaken for PTC training, and will be used to inform future PTC trainings across the world.

Cost per Health Worker Trained¹⁰

The **cost per health worker trained** varies greatly, from £192 for those trained in PTC to £5,807 for trainee surgeons completing clinical fellowships. This range in costs reflects the vastly different length in training courses, the sophistication of the training and the need to provide relocation expenses, accommodation, stipends and support for surgical supplies for those completing the clinical fellowships.

Training Type	Number Trained	Cost per health worker trained	Typical length
PTC	1849	£192.63	Two days <i>(three if trained as an instructor)</i>
Orthopaedic short courses	126	£856.48	Four days
Orthopaedic fellowships	36	£5,807.12	One to six months

Cost per Volunteer Day

The main volunteers used in COOL are the international volunteers to deliver the initial PTC training courses in each country and the orthopaedic short courses, and local volunteers to continue PTC training in-country.¹¹ To January 2015, 142 international and 188 local volunteers have provided 1891 days of training. While the travel costs of volunteers are paid by COOL, the volunteers (and those attending the training) do not receive per diem payments for the days attending training. The total direct spending on volunteers - all travel related - is £121,258, which translates to 12.5% of COOL spending to date and a cost per volunteer day of £134.28.

Extending Project Reach

COOL has been able to extend its reach beyond what was initially envisioned, including:

- Including an additional COSECSA country¹² in COOL training
- Involving four countries outside the COSECSA region¹³ in PTC training
- Addition of a fourth orthopaedics short course training course
- Training additional key informants and including sensory and intellectual impairments as well as physical in the key informant study in Malawi

This extended reach has been possible through savings made elsewhere in the project and leveraging of additional funding (as described in the [Economy section](#)).

Effectiveness

Achieving Project Targets

Based on the most recent project narrative report from October 2014, COOL is on track to achieve seven of its eight (88%) outcome indicators and nine of its 11 (82%) output indicators, including three output indicators that had already exceeded the overall project targets.¹⁴ While the PTC training was already being used in some countries, under COOL this was greatly expanded so that to January 2015 1849 healthcare workers from over 180 hospitals had been trained in PTC, including 545 being trained as PTC instructors. In addition, 126 surgeons have completed short courses in advanced orthopaedics and 36 have completed extended clinical fellowships in paediatric orthopaedics.

“We see the support that THET and COOL give us is to key to building capacity in this country, which is so massively needed”

Mr Tim Nunn
CURE Ethiopia Children’s Hospital

Of the three indicators that were not on track:

- Two relate to the establishment of the COSECSA regional office
- One relates to the active support of Ministries of Health and training institutions to support TMSI training

While the COSECSA regional office may still be established during the final year of COOL, it appears to have been a prudent decision to delay, given the initial lack of clarity about the role of the office and the role and sustainability of the office once COOL is completed. Engaging with Ministries of Health and training institutions to support TMSI training is a major focus for the final year of the project.

Building Social Capital

All interviewees asked about relationships between COOL partners reported strong relationships that had grown over time, with shared understandings of the goal of COOL and **high levels of trust and engagement** in the partnership. This was echoed in the HLSP assessment which reported high levels of commitment and enthusiasm and that cooperation was evident from the field visits they conducted. All interviewees believed that the relationships developed under COOL, particularly between individuals, would be sustained after the end of COOL, even if there was no specific funding to continue the project activities.

Wider Project Impact

“...COOL has made a major contribution to more realistic trauma training in the developing world”

Prof Chris Lavy
COOL Project Director

According to both interviewees and the HLSP assessment report, the model of trauma training used under COOL is appropriate for **low-resource environments**, as it focuses on front line clinical staff and emphasises the use of improvisation rather than reliance on (often expensive and unavailable)

equipment. The materials used for PTC trainings themselves have been substantially revised and improved during COOL, and are now [available publically online](#).

At an institutional level, participants followed up six months after training described how the training has **improved capacity of care** at 22 hospitals in a variety of ways including:

- Increased availability and use of appropriate equipment in accident and emergency health departments to respond to trauma cases
- Improved triage and record keeping systems
- Increased surgical capacity resulting in more patients receiving treatment for TMSI

The research conducted and published under COOL has contributed towards the wider movement to put surgery higher on the **global health agenda**, including the upcoming launch of the [Lancet Commission on Global Surgery](#) in April 2015 which will include contributions from COOL. The key informant study conducted to estimate the prevalence of moderate to severe physical, sensory and intellectual impairments and epilepsy among children in two districts in Malawi led to 2,778 children identified as having an impairment or epilepsy being referred to care, most of whom were unlikely to have been referred to care otherwise.

Additional project outcomes **beyond what was initially anticipated** included returning international volunteers running a well-received PTC training for University of Oxford undergraduate medical students, and self-reported increases in grant and financial management skills of project staff through the interaction with THET during COOL.

Sustainability

Both interviewees and the HLSP assessment report described several examples of how COOL has catalysed **sustainable national improvements** in TMSI care including:

- Development of a national training structure for orthopaedics in Malawi
- Accreditation of PTC training as a continuing professional development activity in Rwanda
- Incorporation of PTC in undergraduate medical training in two universities in Uganda and one in Namibia

The activities and support of COOL have led to **increased funding** for treatment and training of TMSI including:

- Funding from McGill University in Canada to support establishment of a trauma registry in a district hospital in Malawi based on the research findings of the poor quality of data kept on trauma patients
- Funding to the PTC Foundation from outside COOL to support several PTC instructors trained under COOL to lead PTC training in two other countries in Africa¹⁵

The training model used for PTC training ensures training can continue after the end of COOL as **each course produced trained trainers** who are then able to deliver subsequent rounds of training. In the six month follow up of PTC trainees, 67% report having trained others in PTC,¹⁶ and in most countries the third to fifth rounds of PTC training¹⁷ delivered under COOL have been conducted with limited or no involvement of international volunteers.

Several interviewees commented how they believed that COOL has ensured that TMSI is now much more a **focus of COSECSA**; one example of this was the much larger than previous focus on TMSI at the most recent regional conference and another the formal endorsement of PTC training of COSECSA as part of postgraduate surgical training. Together with the increase in capacity of trained staff to deliver TMSI care due to the COOL training programs, this is expected to have longer term impacts on the delivery of TMSI care in the region for years to come.

“...the orthopaedic surgeons out here are really needing people to champion that [high quality services] with governments... showing people how it can be done - whether in UK, or in our hospital in Ethiopia - giving them new vistas of possibilities that they will want to pursue”

Mr Tim Nunn
CURE Ethiopia Children’s Hospital

“Now we have own trainees who can facilitate training, so don't really need the [UK] volunteers anymore”

Linda Chokotho
Beit CURE International Hospital
Malawi

Equity

Within Project Activities

Participants in COOL trainings are drawn from public and private hospitals in COSECSA countries. The percentage of training participants who are female varies between 8-36% of training participants, with females accounting for 30% of international volunteers and 13% of local volunteers. This lack of gender parity is likely due to the predominance of men in higher cadres of healthcare workers such as surgeons and trainee surgeons; COOL has made a concerted effort to address this gap, by prioritising female applicants for the short courses in orthopaedics and clinical fellowship placements.

Within Partnership

The steering committee of COOL is made up of representatives from the:

- University of Oxford (three individuals)
- COSECSA (three individuals)
- PTC Foundation (one individual)
- London School of Tropical Medicine and Hygiene (one individual)
- Medical directors of the four hospitals operated by CURE International and one representative from CURE International UK

Of these 13 members of the steering committee, seven are based in the COSECSA region and six are based in the United Kingdom. Day to day project management decisions are made by a core group of four individuals, three of who are based at the University of Oxford.

Ultimate Beneficiaries

The patients who receive care for TMSI in COSECSA countries are the ultimate beneficiaries of COOL activities. There is limited data available on these beneficiaries, however as 62% of the hospitals that have participated in PTC training are based in **rural areas**, it is expected that both urban and rural populations have benefited from the activities of COOL. A review of records from 16 clinical fellows found that they performed or assisted in 1126 operations during their placements, predominantly for toddlers and children.

As noted earlier, participants in COOL trainings are drawn from both **public and private** hospitals. Depending on the country and the hospital, both public and private hospitals may charge for treatment services as well as other out of pocket expenses, such as medication and food and drink. Although the four hospitals who host the clinical fellowship placements are private hospitals, families of the children treated are reported to pay no or very minimal costs towards their treatment and care services.

Conclusion

Across the four dimensions assessed - economy, efficiency, effectiveness and equity - COOL is able to strongly demonstrate its value for money. In particular, costs have been minimised and reach maximised through the commitment and support of multiple partners and the large reliance on volunteers to conduct training. Certainly, it is difficult to imagine how COOL could have achieved equivalent project reach and impact using alternative models of delivery, such as conducting all training regionally or in an international location. The results to date suggest that COOL will have long-lasting impacts on both the profile and capacity to treat trauma and other musculoskeletal impairments in Eastern, Central and Southern Africa for years to come.

Acknowledgements

The following individuals were interviewed for this case study:

Name	Organisation	Role in COOL	Location
Mr Charles Clayton	Primary Trauma Care Foundation	Coordination of PTC courses	UK
Prof. Chris Lavy	University of Oxford	Project Director	UK
Ms Grace Le	University of Oxford	Project Coordinator	UK
Prof. Godfrey Muguti	COSECSA Council	COSECSA Representative	Zimbabwe
Dr Ruhungande Landouald	Ruhengeri Hospital	PTC course organiser	Rwanda
Dr Linda Chokothe	Beit CURE International Hospital	COOL Programme Researcher	Malawi
Dr Mathenge Nduhiu	Nyeri County Referral Hospital	PTC instructor and course organiser	Kenya
Mr Noel Peter	University of Oxford	NHS volunteer PTC instructor, M&E Fellow	UK
Mr Tim Nunn	CURE Ethiopia Children's Hospital	NHS volunteer on orthopaedic and PTC courses	Ethiopia

The time and contribution of all interviewees are greatly appreciated, with particular thanks to Grace Le and Noel Peter for providing additional information and project data following the interviews. Individuals from COOL (Grace Le & Chris Lavy), THET (Emily Burn & Dan Ritman) and two consultants preparing other VfM case studies for THET (Gillian Eva & Michael Thiede) read and provided helpful comment on the draft of the case study.

Endnotes and References

¹ Independent Commission for Aid Impact (ICAI). ICAI's Approach to Effectiveness and Value for Money; 2011

² Department for International Development (DFID). DFID's Approach to Value for Money (VfM); 2011

³ The Health Partnership Scheme aims to improve health services in developing countries through the exchange of skills, knowledge and experience between organisations in the United Kingdom and developing countries.

⁴ Independent Commission for Aid Impact (ICAI). ICAI's Approach to Effectiveness and Value for Money.; 2011

⁵ For this case study, social capital is taken to mean the links, shared values and understanding between individuals and organisations involved in a HPS that enable them to work together (definition adapted from Keeley B. What is social capital. In: OECD Insights: Human Capital: How What You Know Shapes Your Life.; 2007:102-105)

⁶ Each budget line was assessed to see if could be described as a capital, indirect, project management, monitoring, evaluation and learning (MEL), travel, salary or direct volunteer cost (categories not mutually exclusive). Where possible, budget lines were also assigned to the type of COOL activity they related to (PTC training, orthopaedic training, orthopaedic fellowships and research projects). Budget lines assigned to project activities included their associated travel, salary and MEL costs.

⁷ Salary costs were apportioned based on estimated proportion of time spent on project management, MEL, and direct contribution to the project activities (disaggregated into training and research).

⁸ Capital costs are inputs that are expected to last for more than 12 months e.g. equipment, furniture, computers

⁹ Commonly monitoring and evaluation costs are quoted as being expected as 5-10% of total project budgets (see [MEASUSRE Evaluation M&E Fundamentals Minicourse](#))

¹⁰ Cost per healthcare worker trained was calculated by identifying and summing spending on budget line items associated with the healthcare worker training (direct training costs (e.g. venue, training equipment and supplies, refreshments), travel costs for trainees and trainers to attend training (flights, accommodation, subsistence, insurance) and MEL costs directly linked to training activities) by training type, divided by the number of healthcare workers who had completed each type of training.

¹¹ The PTC training is generally delivered in a '2-1-2' day format; first two days to deliver the PTC training, third day to train trainers identified during the first course, and days four and five for the new trainers to deliver the PTC training course to a new group of trainees, supported by the experienced trainers. COOL aims to deliver five rounds of this training in each of the COSECSA countries, with the first one or two rounds generally led by international volunteers and the remaining rounds delivered by local volunteers.

¹² PTC training is scheduled for Burundi in 2015, which was not originally planned for

¹³ Two doctors from the Democratic Republic of Congo were supported to attend a PTC training in Rwanda; COOL provided funding to another organisation to support a PTC training in the Republic of Congo; COOL is providing funding to a PTC instructor in Rwanda to travel to Madagascar and deliver PTC training; two PTC trainings have been provided in Namibia

¹⁴ The three output indicators that have exceeded project targets according to the October 2014 narrative report are number of PTC trainers trained (n=455 against target of 185), number of clinical fellowship trainees (n=34 against target of 18) and number of NHS volunteers contributing to the project (n=79 against target of 50)

¹⁵ Several PTC instructors from Rwanda trained under COOL will deliver training in Madagascar and Ghana

¹⁶ Note that the subsequent training conducted by PTC trainees includes both formal courses as well as more 'informal' passing of knowledge and skills gained at the PTC training to colleagues

¹⁷ See endnote 11 for explanation of the rounds of PTC training.