COURSE REPORT

MBEYA & IRINGA, TANZANIA

6th – 13th June 2014

Report Presented by: Tom Hanna

COSECSA Oxford Orthopaedic Link (COOL)
This Primary Trauma Care course is part of a project funded through the Health Partnership Scheme, which is funded by the UK Department for International Development (DFID) for the benefit of the UK and partner country health sectors and managed by the Tropical Health Education Trust (THET). The project is called the COSECSA Oxford Orthopaedic Link (COOL). More information is available at www.ndorms.ox.ac.uk/cool.php.

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ABSTRACT

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Purpose of the visit

This course was the fourth of five to be run in Tanzania over an 18-month period, as part of the COOL project. (COSECSA Oxford Orthopaedic link).

Trauma is a substantial cause of morbidity and mortality. In Tanzania, it accounts for 30% of casualty referrals and costs the country $20 billion / year. It also accounts for more deaths than both HIV and Malaria combined, yet has a considerably lower profile and only a fraction of resources spent on tackling this public health problem.

The first Primary Trauma Care course was held in September 2013 in Muhimbili National Hospital, Dar Es Salaam, supported by 4 UK instructors plus Dr Howard Kingu from South Africa. The second course took place in December 2013 at Kibaha and Bagamoyo District hospitals. Tanzanian instructors from the Emergency Medicine department at Muhimbili National Hospital led the course, supported by two UK based PTC instructors. The third course, representing the Northern region at Kilimanjaro Christian Medical Centre (KCMC) in Moshi and Mount Meru hospital in Arusha was supported by a UK based PTC instructor.

This penultimate course representing the Southern Highland region, was supported by myself, Tom Hanna a surgical trainee from the UK and took place in Mbeya and Iringa Hospital in the Southern Highlands. Continuing the previous formats this course followed the 2-1-2 format and was held at the two centres over 5 days.

Executive Summary

The Primary Trauma Care training for the Southern Highlands took place in Mbeya and Iringa between 9-13th June 2014. Tom Hanna, PTC representative from the UK, supported the team of instructors, from Dar es Salam, all of whom are now very experienced in delivering PTC training. The team travelled first to Mbeya Hospital, then to Iringa Hospital, before returning to Dar es Salam.

In Mbeya Hospital 19 health professionals completed the PTC training. Of these 11 went on to complete the instructor's course and three travelled to Iringa with the team to deliver the second PTC course. At Iringa, 22 health professionals completed the PTC course. In both hospitals there was a variety of specialties, both medically and nursing trained.

All candidates demonstrated marked improvement in understanding of trauma management and demonstration of trauma clinical skills, particularly management of c-spine and reassessment of ABCDE in an unstable patient. There was also much enthusiasm to develop a self-sustaining PTC program capable of expanding throughout the Southern Highlands from both the candidates, and by the respective leaders in each hospital.

The Southern Highlands represented logistical and financial challenges due to the distances involved. Repeating future courses involving such distances may be difficult, though it is hoped that the Southern Highlands will develop a self-sustaining PTC program.

Communication issues in the build up to the Southern Highlands training meant that some opportunities to develop the PTC leadership in the Southern Highlands were missed. It is hoped that these issues will be resolved, and leadership enhanced with the introduction of a PTC Facebook group.

Key Personnel

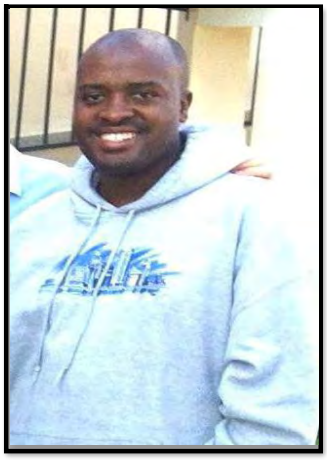
Dr. Geminian Tembe

Profession
- Emergency Physician, final year resident

Place of work
- Muhimbili National Hospital

PTC experience
- PTC trainee 2009
- PTC Instructor
  - Kibaha and Bagamoyo Dec '13
  - Arusha and Moshi March '14

Dr. Kepha Bernadi



Profession
- Emergency Physician, Resident

Place of work
- Muhimbili National Hospital

PTC experience
- PTC trainee 2009
- PTC Instructor
  - Dar es Salam Sept '13
  - Kibaha and Bagamoyo Dec '13

Experience
- Emergency department, Maryland, USA

Specialist interests
- Pre-hospital care and PTC leadership

Dr. Said Kilindimo

Profession
- Emergency Physician, Specialist

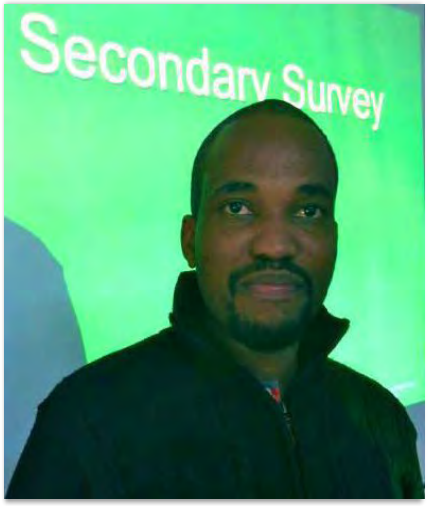
Place of work
- Muhimbili National Hospital

PTC experience
- PTC Instructor, Arusha and Moshi Mar'14

Experience
- Cape Town Emergency physician trainee for 4 years

Specialist interests
- Paediatric Emergency and critical care

Dr Patrick Shaeo



Profession
- Emergency Physician, Resident

Place of work
- Muhimbili National Hospital

PTC experience
- PTC trainee Sept 2013

Specialist interests
- Pioneer of telemedicine for rural education

Mr. Tom Hanna

Profession
- General Surgical Registrar

Place of work
- Liverpool, UK

PTC experience
- PTC Instructor
  - Dar es Salam ’14

Experience
- Trauma surgery elective, South Africa, 1 year

Specialist interests
- PTC leadership and emergency humanitarian relief surgery.

Professional Aspects of the Visit

This course was hailed from the start to be a logistic rather than a professional challenge. The Tanzanian instructors have all now gained expertise and confidence in delivering the PTC course, but the remote regions and long distances involved were an unknown quantity.

The challenges did not take long to materialize. Having carefully allocated the PTC training kit into seven cases of each just less than 20kg, they were quickly emptied by Dar es Salam airport security. Several members of the security team wanted to find out what was inside the mannequins' head (Figure 1). I suggested that finding out might not be wise as they had seen so much trauma. They eventually agreed, but by that time we had missed our flight check-in time by 2 minutes. The 'Fastjet' airline succeeded in making RyanAir look like customer relations experts!

Fortunately there was an early flight the following morning, which would get us to Mbeya in time for the start of the course (Figure 2). Some of the cost of the new flights was off set by savings in meals and accommodation that night. The contents of the mannequin's head, however, remain a mystery.

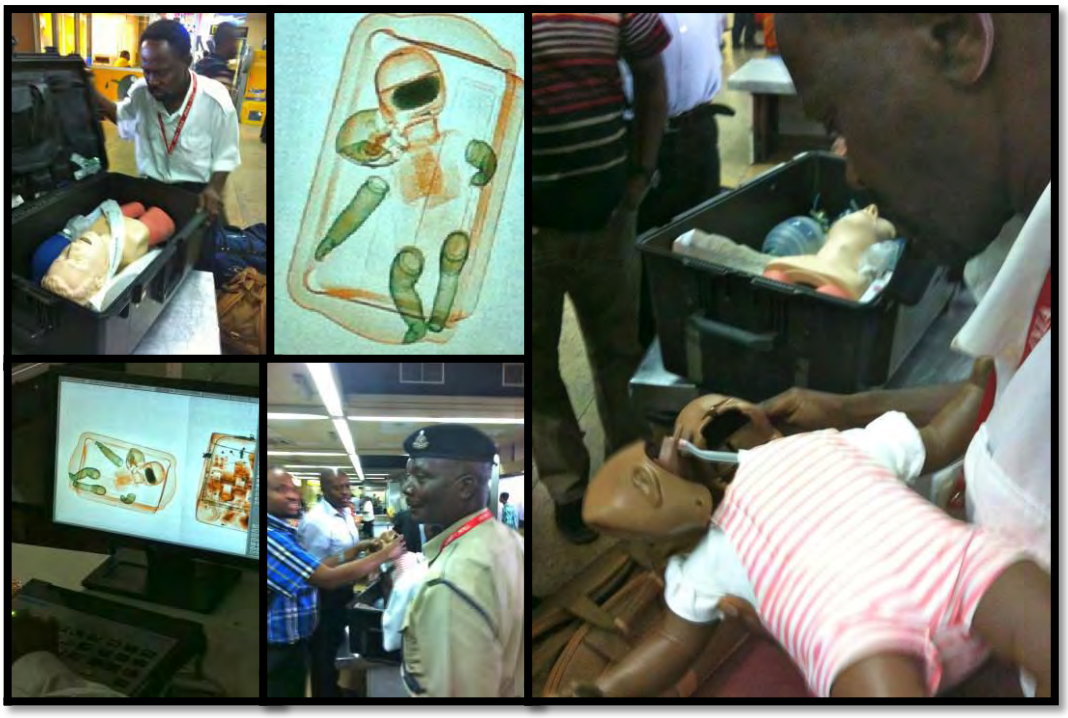


Figure 1. Confusion over the contents of the baby's head causes missed flight

Figure 2. Dawn at Mbeya airport

The facilities at Mbeya were perfect for running the PTC course. A large room furnished with high-end furniture and equipped with a presentation podium, top

table on an elevated platform and projector screen. There was ample room for group work and skill stations too. AV facilities and projection were provided by the instructor's laptops and a projector donated by PTCF. The quality of food and refreshments was of equal quality. The same facilities were used for the Instructors course; though a double booking resulted in a 60-minute delay to our start.

Course Participants

There were a total of 19 participants, 11 women and 8 men. The specialties represented were Surgery, Paediatrics, Anaesthetics and Emergency Medicine. Jones the anesthetist performed very well scoring a maximum 30 on the MCQ.

Sixtus was our local coordinator. He is an Emergency medicine nurse and head of the Emergency Medicine Department. The Mbeya candidates selected him as the local lead for PTC and he will liaise with the Dar es Salam team in future. He gave full support to his staff to attend the Instructor course. Six stand out participants who had expressed an interest in becoming instructors but were unable to come to Iringa because of short of notice were:

Magdalena Daniel Swebe
Fausta Michael
Haika Maro
Ainamen Maro
Boniface Thomas Kivevele and
Jones Chitemo

The candidates from Mbeya who attended and taught in Iringa were Sixtus, Esupath Moiro and Shabani Joseph (Figure 3).

Figure 3. Instructors for the Iringa PTC course. From left to right: Patrick, Shabani, Sixtus, Estupath, Saidi, Gimmy, Tom and Kepha.

Details of Activities

Day 1

The PTC instructors made an impressive start to proceedings. Despite only have 2 hours sleep (due to missed flight) all course participants were greeted and had started their registration details and MCQs by 9am.

The lectures were shared amongst the 5 instructors and were received well. The PTC concepts were subsequently demonstrated well by candidates during the scenarios. These were very popular with the group and there was both positive and negative feedback given from their colleagues in a suitable manner. Three skill stations were stations used: C-spine log roll, Basic and advanced airway (but not surgical airway.

Day 2

This began, once again promptly at 9 am. Lectures covered the allocated more advanced topics, but with emphasis on a revision of the ABCDE approach.

The skill stations worked particularly well. The team decided to use only three stations to maximize the time on the resources, particularly chest drain insertion

on the goat. This process developed continuity between paediatric IV/IO access, and anatomy and practical aspects of chest drain insertion. Combining 2 skills in two of the stations, allowed each candidate to gain practical experience of ICD insertion on the goat (Figure 4).

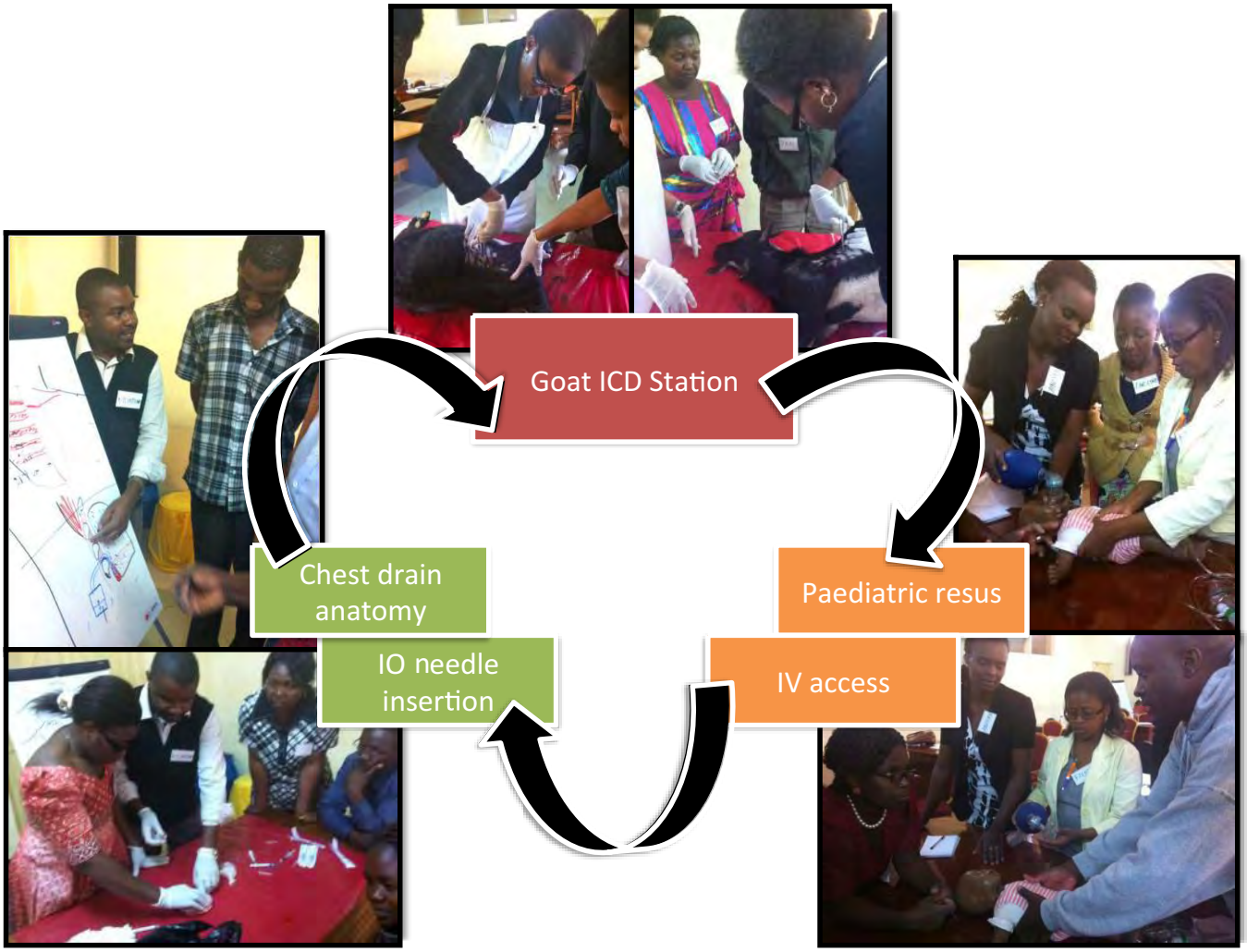
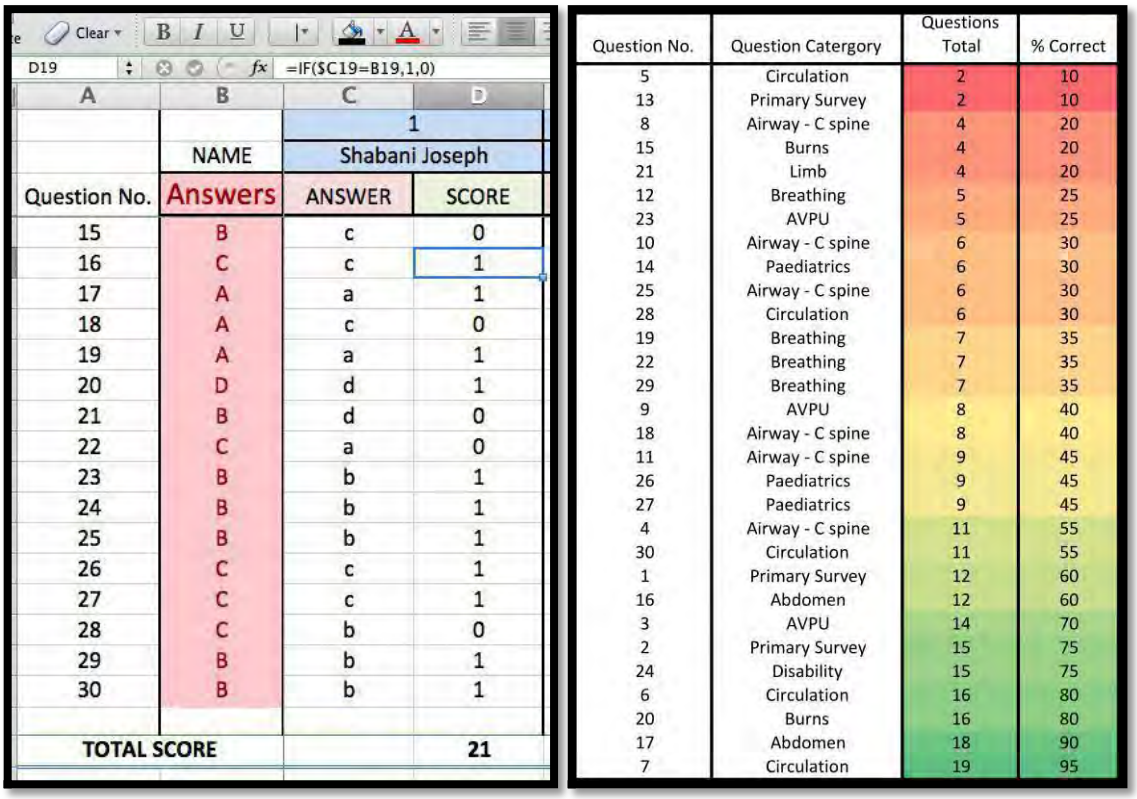


Figure 4. Skill station set up day two at Mbeya

Summary of Multi Choice Questionnaires

A spreadsheet was developed which would allow automatic marking of the MCQ scores as well as identify patterns of understanding and knowledge across the group to aid teaching (Figure 5). This allowed the instructors to mark and rank

the results within 30 minutes and feedback to the candidates early on in the course.



		1	
	NAME	Shabani Joseph	
Question No.	Answers	ANSWER	SCORE
15	B	c	0
16	C	c	1
17	A	a	1
18	A	c	0
19	A	a	1
20	D	d	1
21	B	d	0
22	C	a	0
23	B	b	1
24	B	b	1
25	B	b	1
26	C	c	1
27	C	c	1
28	C	b	0
29	B	b	1
30	B	b	1
TOTAL SCORE			21

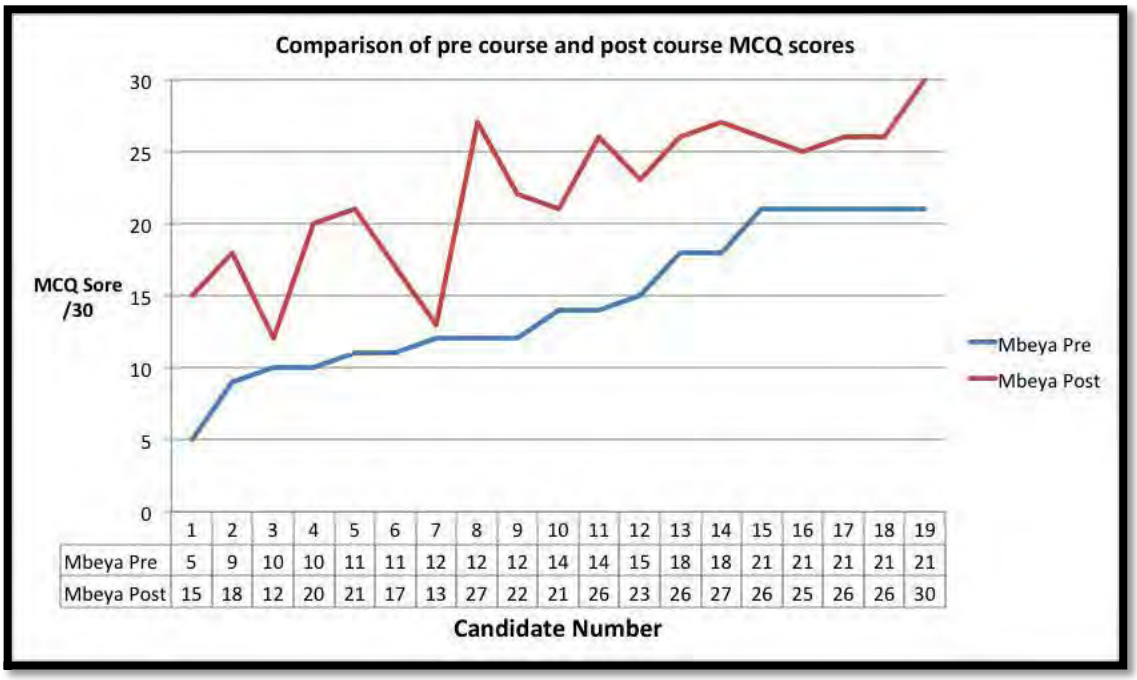
Question No.	Question Catergory	Questions Total	% Correct
5	Circulation	2	10
13	Primary Survey	2	10
8	Airway - C spine	4	20
15	Burns	4	20
21	Limb	4	20
12	Breathing	5	25
23	AVPU	5	25
10	Airway - C spine	6	30
14	Paediatrics	6	30
25	Airway - C spine	6	30
28	Circulation	6	30
19	Breathing	7	35
22	Breathing	7	35
29	Breathing	7	35
9	AVPU	8	40
18	Airway - C spine	8	40
11	Airway - C spine	9	45
26	Paediatrics	9	45
27	Paediatrics	9	45
4	Airway - C spine	11	55
30	Circulation	11	55
1	Primary Survey	12	60
16	Abdomen	12	60
3	AVPU	14	70
2	Primary Survey	15	75
24	Disability	15	75
6	Circulation	16	80
20	Burns	16	80
17	Abdomen	18	90
7	Circulation	19	95

Figure 5. Excel interpretation of MCQ results

Questions 6 & 7 were answered correctly by most and all respectively (Figure 5). These questions concerned fluid resuscitation in a shocked patient. Positive reinforcement of this was given before the second lecture.

Conversely, questions 8 & 13 were felt to be fundamental to the core concepts of PTC and were answered correctly in only 20% and 10% respectively (20% correct answer expected by chance alone). These concerned the timing of C-spine stabilization and the role of reassessment of ABCDE in an unstable patient. Clarification of these issues, in the form of revision of the first two lectures was given before progressing with the remaining lectures.

There was improvement seen from all candidates in the MCQ scores post course (Figure 6).



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Mbeya Pre	5	9	10	10	11	11	12	12	12	14	14	15	18	18	21	21	21	21	21
Mbeya Post	15	18	12	20	21	17	13	27	22	21	26	23	26	27	26	25	26	26	30

Figure 6. Line graph showing improvement in MCQ scores post PTC course

Success and relevance

We were joined for the closing ceremony by the Medical Director of Mbeya Hospital (Figure 7). He delivered a well pitched speech, thanking the PTC foundation, congratulating the course participants and instructors, and reinforcing the need for sustainability of training, whilst highlighting the underlying themes of PTC to save lives and alleviate suffering.

The training course should be considered a success for two reasons. Firstly, all participants demonstrated improvements in understanding of PTC concepts and could demonstrate newly learnt skills in the management of trauma patients. The management of c-spine injuries during assessment of airway and the reassessment of ABCDE were new concepts learned by all. Secondly, motivation and enthusiasm to develop a self-sustaining program of PTC training in the Southern Highland regions was evident. There were at least 9 experienced health professionals who demonstrated leadership potential, and expressed a willing to train colleagues and other hospitals with the region.

The main area, which limited the success of this course, was communication. The course participants were not aware that they had an opportunity to travel to Iringa to become PTC instructors; this meant at least 6 capable participants were unable to attend. Though this was communicated to the regional representative Sixtus during the course of planning, this information did not filter down to the participants until the day of the course. The candidates felt it was important to have a method of direct individual communication with PTC organisers, as well as a local PTC coordinator. To remedy this, I have set up a PTC Facebook group to take advantage of the social media explosion, which has taken place in Tanzania over the last year. This will allow a group to share ideas and experiences as well as organize future training courses.

Figure 7. Medial director of Mbeya Hospital with course participants and instructors (Taken by Tom Hanna)

Instructor Course – Day 3

PTC Instructor course participants

The team felt the quality of the candidates at Mbeya was very high; selecting candidates for the instructor course was difficult. 12 were selected reflecting a mix of nurses and doctors.

PTC Instructor course instructors

As per key personnel.

Contents of Instructor course

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Unfortunately, the venue we were using was double booked by the hospital management for their weekly meeting between 9-10 am. As there was no other suitable venue the course begun with a revised timetable at 10.15am.

To catch up on time the didactic sessions were taught in a relatively short space of time. Similar to previous formats, all candidates were asked to prepare a 5-minute presentation to give to the group. The exercise served to develop skills of feedback as well as demonstrate teaching ability. There were some excellent presentations including:

Correct technique for breast-feeding

How to make homemade luxury scrub

How to make, sterilize and store Soya milk

How to perform a task with confidence – in the style of Ronaldo.

The group enjoyed and improved at giving feedback to their colleagues.

Unfortunately only three of the 12 were able to come to Iringa for the next course. There was real enthusiasm amongst at least another six of the group, listed earlier, who had demonstrated instructor and leadership potential. Recommendations for this are discussed later.

The 5 strong PTC team and the 3 new PTC graduates left for Iringa by minibus at 17.00 arriving at 22.30 after a rapid, and at times, terrifying journey!

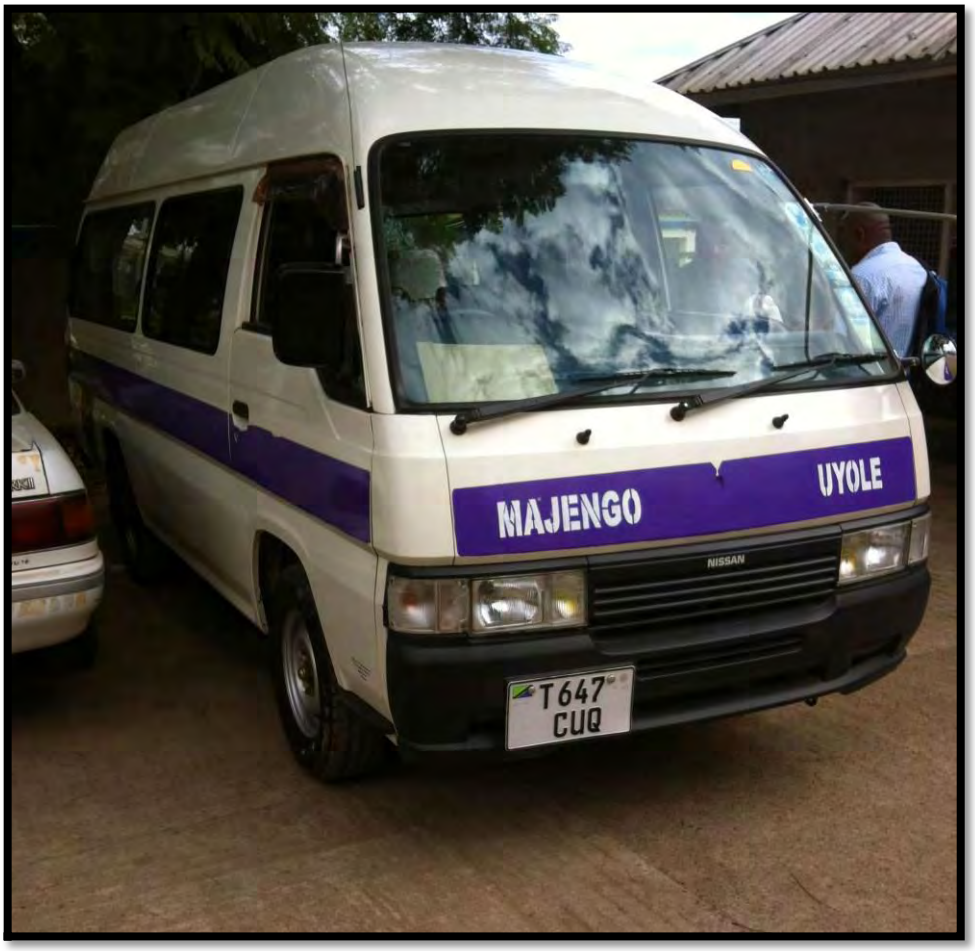


Figure 8. Our hired minibus for instructors to travel to Iringa

Iringa Days 4 & 5

Course participants

There were 22 candidates who completed the PTC course. 2 arrived late due to unavoidable clinical duties and missed the Pre-course MCQs. Amongst the candidates, there were several attenders (non-medically trained). This was reflected in the MCQ scores, which were slightly lower than in Mbeya. Within the doctors and nursing group there was, once again a mix of experience levels and specialties.

Course instructors

In addition to the instructors for Day 1 & 2, Shabani, Sixuts and Estuptha joined the team from Mbeya Hospital.

Contents of PTC course

The room allocated for the course at Iringa posed several challenges and was initially unsuitable for teaching. It was a small, designed as a children's play area equipped with slides and other fun, but otherwise unhelpful equipment. The team managed to convert it as best as possible to a PTC environment (Figure 9).

As we had only 3 instructors from the Mbeya course, the lectures were also given by the original team. After an initial concern regarding the suitability of the venue, the scenario set up was actually more realistic than Dar es Salam and Mbeya. We used the corridors and sourced three hospital beds from the adjacent ward. The children's bookshelves served as emergency room cabinets with ABC equipment according to shelf (Figure 10).

Figure 9. From 'Playroom' to Classroom – PTC set up for Iringa.

Figure 10. Mock Emergency Room set up for scenarios at Iringa

The new instructors ran the scenarios well supported by the Dar team. There were difficulties with the marked disparity of abilities within the group. Several of the doctors performed well, some candidates openly declared they had no idea what to do. This issue was addressed on the second day by having two tiers; medical qualified and experienced nursing in one 'Advanced' group and the unqualified staff in the 'Basic' group. This format was also used for the skill stations, which were run very competently by the newly qualified instructors (Figure 11).

Figure 11. Shabani (left) and Estupath (newly qualified instructors) running airway skill stations at PTC course in Iringa.

The mid-morning lectures of Day 5 were interrupted by the Medial Officer of the hospital. He requested the whole class attend reception event to receive a donation of surgical equipment at 10am for 15 minutes. This event also involved 5 of the class participants, so these were unable to attend two of the morning lectures.

Unfortunately the event was still on going nearly two hours later. On visiting the event it did not seem like it was near closing so Dr Patrick and I interrupted and asked the 15 PTC participants to be excused. We were soon back on track with all 22 participants.

To maximize resources and learning opportunities the 'Advanced' group rotated through two skill stations of 45 minutes each (Figure 12). The 'Basic' group were pleased to have some slower paced revision of Day one.

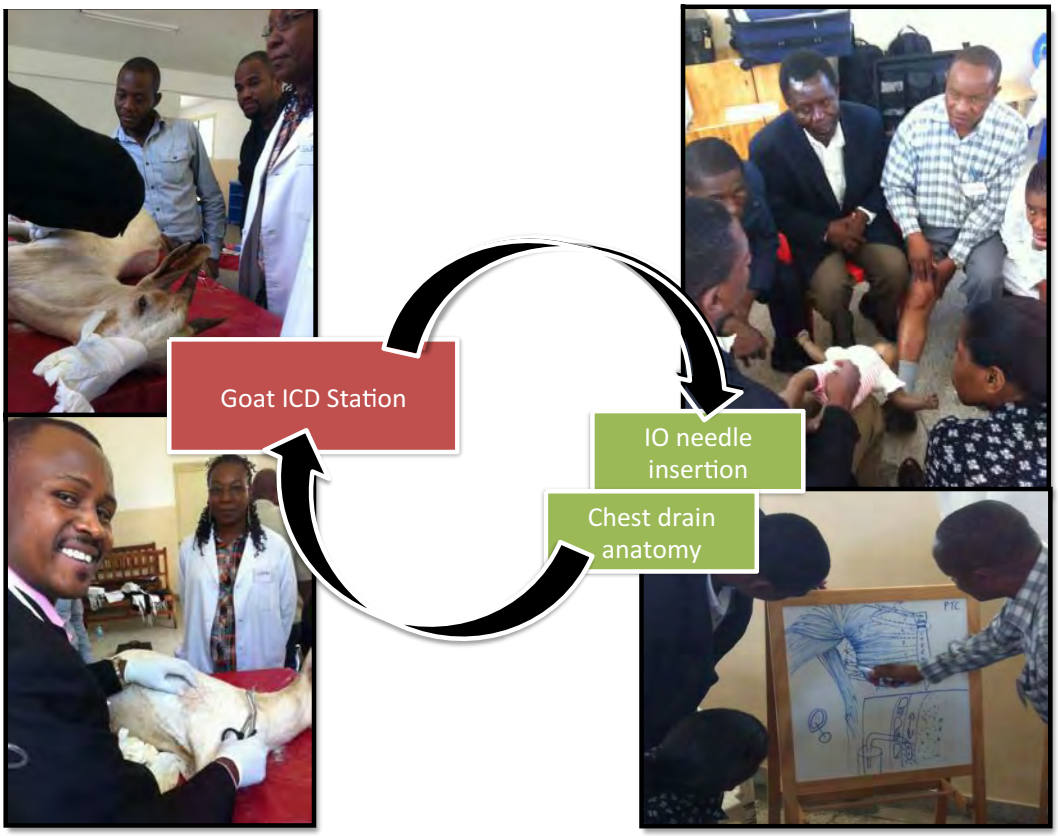


Figure 12. Skill station set up for 'Advanced' group on day 5

Summary of Multi Choice Questionnaires

Remarkably, the pattern of MCQs was almost identical to Mbeya and likely reflects misconceptions of trauma management in the Southern Highlands. The correct type of fluid was correctly identified for hypovolaemic shock by 19 out of 20 candidates. The questions regarding reassessment of ABCDE in an unstable patient (Question 13) and the timing of managing a C-spine injury (Question 8) were answered correctly by only 2/19 (10.5%) and 4/19 (21%) respectively. These results were presented to the group during the first morning to correct misconceptions early (Figure 13).

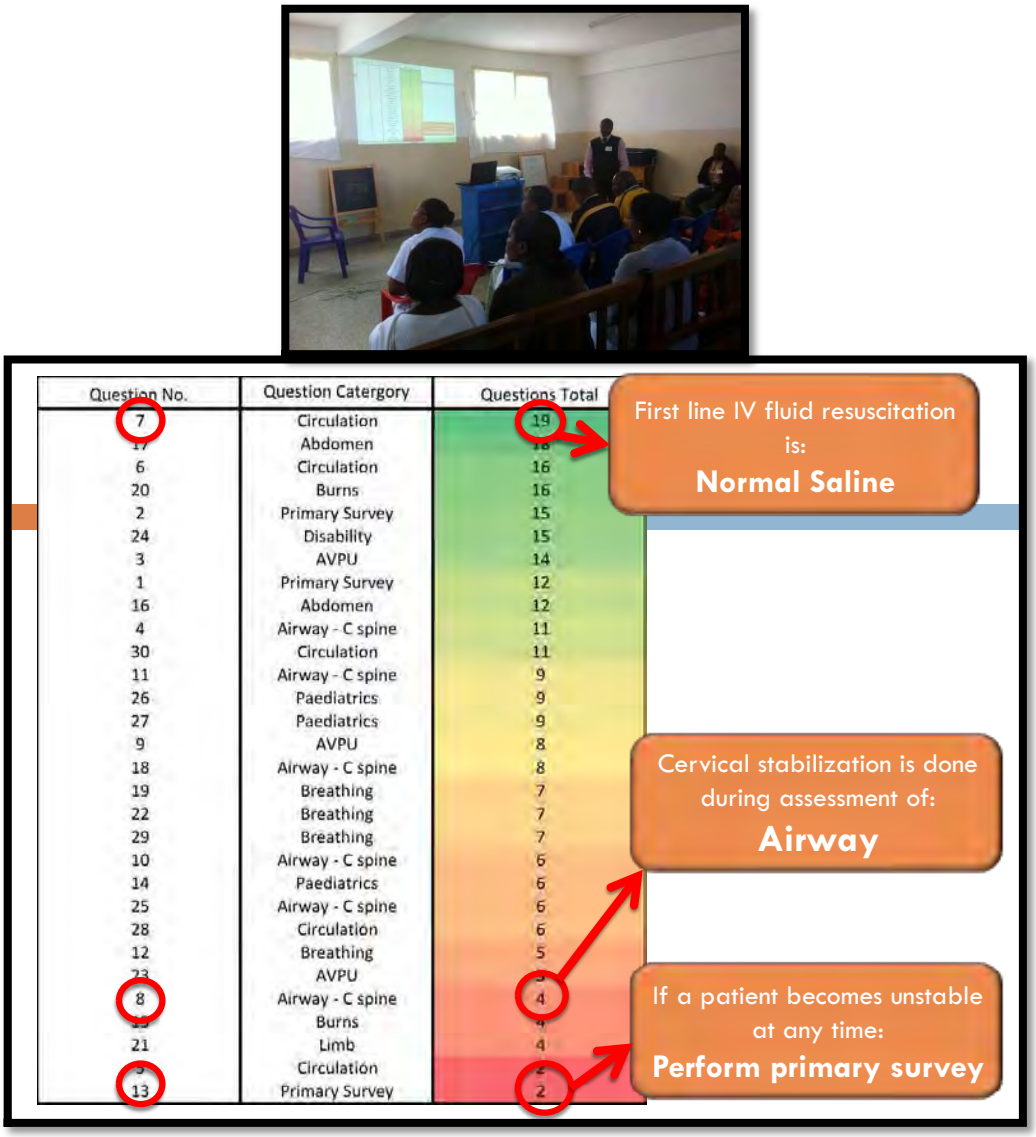
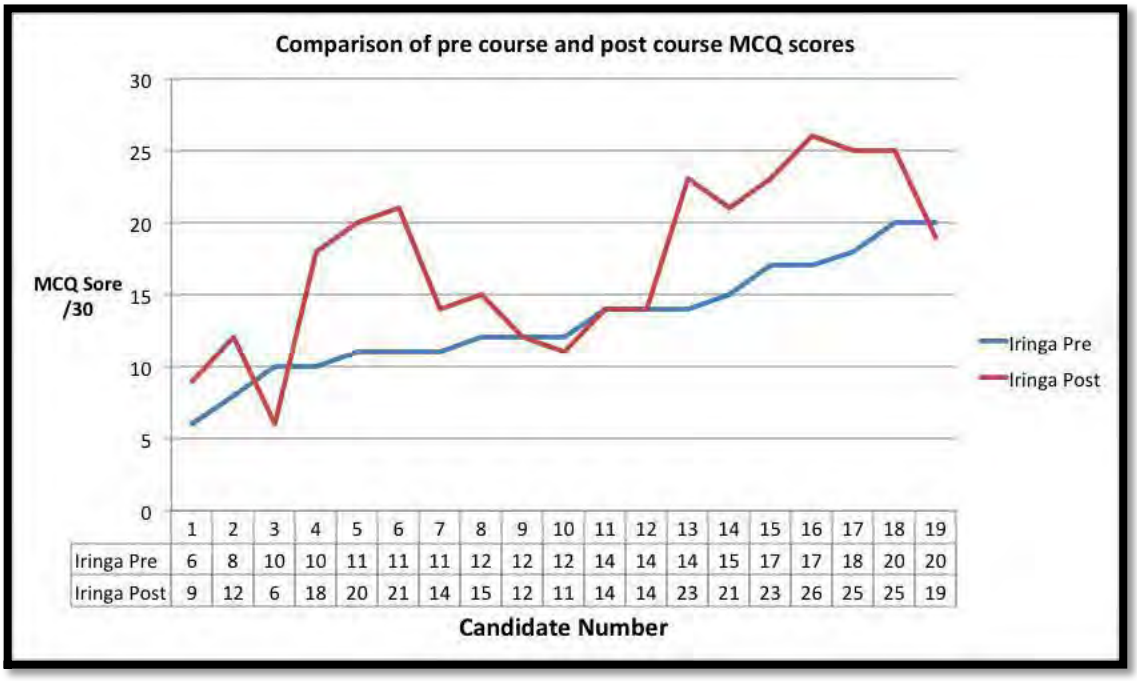


Figure 13. Results of pre-course MCQ being presented during first morning

There was an improvement in nearly all participants' MCQ score after the course

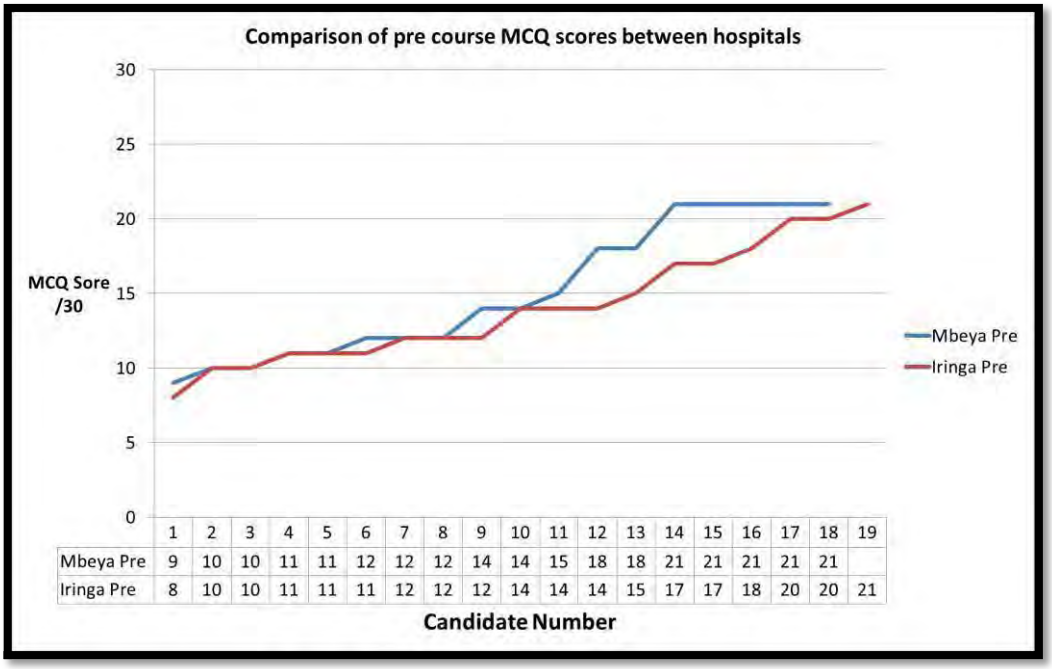
Post course MCQ showed that these questions were both answered correctly by 75% of the candidates. Most candidates improved their scores after the course (Figure 14).



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Iringa Pre	6	8	10	10	11	11	11	12	12	12	14	14	14	15	17	17	18	20	20
Iringa Post	9	12	6	18	20	21	14	15	12	11	14	14	23	21	23	26	25	25	19

Figure 14. Line graph comparing MCQ score pre and post PTC course.

Overall the pre course MCQ scores were slightly higher in Mbeya (Figure 15).



	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Mbeya Pre	9	10	10	11	11	12	12	12	14	14	15	18	18	21	21	21	21	21	
Iringa Pre	8	10	10	11	11	11	12	12	12	14	14	14	15	17	17	18	20	20	21

Figure 15. Line graph comparing MCQ scores pre PTC course at Mbeya and Iringa.

Success and relevance

We were joined by the Medical Officer in charge of Iringa hospital, Dr Manyama (Orthopaedic surgeon). He thanked the PTC foundation for their valuable input in training his staff. In essence he stated that those trained in PTC today need to be trained as instructors so they can not only continue the expansion of PTC at Iringa, but train the staff of the rural referring hospitals where the need is greater. As he is clinically involved in trauma management I believe he has a good understanding of both the challenges and opportunities. He will liaise with Siadi and Kepha from Dar to arrange this.

Figure 16. Dr Manyama, Medical officer in charge of Iringa hospital with PTC instructors and candidates.

The successful elements of this course were similar to Mbeya and two-fold. Firstly, the concept of C-spine management and ABCDE reassessment in an unstable patient was foreign to the Iringa group. Upon completion of the course these were thoroughly ingrained. Secondly, there was a real understanding and desire for sustainability and propagation of the PTC training in the Southern Highlands. In both courses this was explicitly stated and emphasized by the Medical Directors. There were several candidates at Iringa who would be suitable to become instructors. As they have not had instructor training, I suspect that the most suitable group to implement further training will be the

cohort of trained instructors at Mbeya, in conjunction with Dr Manyama (Medical director at Iringa)

Observations and recommendations

The Southern Highlands PTC training was challenging in terms of distances involved between hospitals. Despite this, the training was highly valued and there is an appetite for developing a self-sustaining PTC program. Themes of re-assessment of ABCDE and c-spine management were notable areas of improvement.

Facebook

The opportunity to recruit enthusiastic champions of PTC in the Southern Highlands was missed due to issues with communication. Six candidates from Mbeya could have come to Iringa had they been given more notice (they only found out the day before). Though Sixtus was the local co-ordinator, the details of this arrangement did not filter down to the participants.

Ruth's report from Arusha and Moshi PTC course earlier this year stated:

"it may be helpful to give notice to all participants on the first course that selection as a trainer will mean traveling away from home. This might avoid the last minute need to rearrange work and domestic commitments in a single evening and would increase the chance that those trained could then participate in the second 2 day course."

Unfortunately this was not acted on. The 6 most capable and enthusiastic PTC instructor trainees were disappointed not to be able to go to Iringa to graduate as PTC instructors due to inadequate notice to arrange childcare. They have requested a method of direct communication with the PTC organizing committee in addition to a regional representative. They were optimistic that the PTC

Facebook group would work. A straw poll confirmed all of the course participants use Facebook to communicate. A PTC Tanzania Facebook group has now been created, with various sub-divisions according to region. It is hoped that this can now be used to raise awareness of PTC in the Southern Highlands, share course experiences, including photos and videos and plan further training courses. Kepha and Gimmy will take the local lead in developing this page.

PTC badges

Kepha came up with the idea of having a 'PTC Trained' badge which course graduates can wear at work to aid team-work in the trauma setting, promote PTC and encourage their colleagues to enquire about and seek out a local course. Kepha will look into the costing of this and make a proposal to consider this as a pilot for the final course.

Security

Where ever possible taxis should be taken in groups and with licensed taxi companies.

Acknowledgements

We would like to thank Charles Clayton and Annette Clack for their encouragement, support and advice, as well as Deborah Harris for leading the Tanzanian PTC project which such commitment and enthusiasm and for giving me an opportunity to lead this Southern Highlands PTC team.