

A Report of Teaching Visit for Paediatric Urology and Surgery,

**Red Cross Children's Hospital, Cape Town
South Africa**

25th May 2009 - 29th May 2009

And

**Tikur Anbessa Hospital, Addis Ababa,
Ethiopia**

30th May 2009 - 11th June 2009

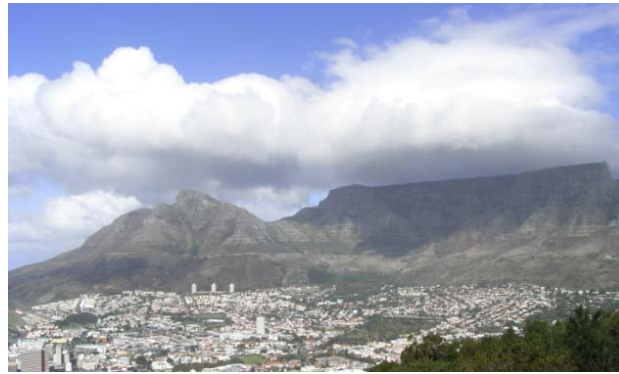
Professor PA Dewan



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South Africa



Background

During the South African Urology meeting in the Drakensberg region in 2008, Dr John Lazarus, a Paediatric Urologist from the Red Cross Hospital, discussed the prospect of a workshop in Cape Town, which subsequently came to fruition. In conjunction with Urologists, Paediatric Surgeons and those involved in the care of the Paediatric urinary tract in Cape Town, a three day workshop on open and endoscopic Paediatric Urology was conducted, and included the participation of and Surgeons from other parts of South Africa. The Red Cross Hospital in Cape Town is one of the world renowned centres for the care of children, particularly noted for research in small bowel atresia and the management of Siamese twins.

Pre-conference Teaching

Prior to the workshop, ward rounds, grand rounds and uroradiology meetings were participated in, at the Red Cross Children's Hospital, but also at the adult urology unit in a nearby Adult General Hospital.

On 25th May, Professor Dewan participated in a teaching and management of all Urology cases with Professor Pointin, John Lazarus, three senior registrars, the junior medical staff intern, and a visiting Sudanese trainee. The cases included examples of:

1. Renal abscess
2. Bladder cancer
3. Prostatic malignancy
4. Benign Prostatic Hypertrophy
5. Ureteric injury at Caesarian section
6. Nephrolithiasiss
7. Gunshot injury
8. Knife injury
9. Neuropathic bladder

Topics covered in discussion pertained to the training of the junior staff in the management of the adult cases, but relevant to the Paediatric Urology perspective, included:

1. Wilms tumour management
2. Xanthogranulomatous pyelonephritis
3. Idiopathic urethritis
4. Renal Tuberculosis
5. Renal cell carcinoma
6. Renal failure
7. Elevation of nephrostomy for removal
8. Posterior urethral obstruction
9. Ureterocalycostomy
10. Ureteroureterostomy
11. Urothelial line bladder augmentation

On the 26th May, Professor Dewan participated in an excellent grand round presentation at the Red Cross Children's Hospital. A collaborative research study was presented by students from the Erasmus University, Sophia Children's Hospital, Netherlands, on deep tissue oxygen monitoring in Necrotising enterocolitis and laparoscopy, followed by Urology and Paediatric Surgical wards rounds, and multidisciplinary radiology meetings for those two clinical units. In addition to the surgical staff, numerous students and specialists from both Nephrology and Radiology (and their trainees) participated in active and informative discussions. Topics and cases discussed included those for surgery during the workshop, and multiple others, including:

- | | |
|----------------------------------|---|
| 1. Bladder exstrophy | 19. Urethral obstruction |
| 2. Buried penis | 20. Duplex renal systems |
| 3. Epididymo-orchitis | 21. COPUM |
| 4. Neuropathic bladder | 22. Vesicoureteric junction obstruction; |
| 5. Spina bifida, | 23. Multitrauma management |
| 6. Perforated bladder | 24. Bile duct cystic disease |
| 7. Renal failure | 25. Necrotising enterocolitis |
| 8. Multi Cystic Kidney | 26. Intestinal worms |
| 9. Prune belly Syndrome | 27. Post gastroenteritis ischaemia |
| 10. Patent urachus | 28. Erect position Xrays in bowel obstruction |
| 11. Testicular torsion | 29. Meningococcal limb ischaemia |
| 12. Ureterocystoplasty | 30. Dysentery in AIDS |
| 13. Eggshell sign | 31. Bowel atresia |
| 14. Calyx to Parenchymal ratio | 32. Duodenal atresia + imbrication |
| 15. Jigsaw puzzle approach | 33. Appendicitis |
| 16. Dunbar sign | 34. Thyroglossal tract embryology |
| 17. Magnetic resonance urography | 35. Thoracopagus Siamese twins |
| 18. Bladder instability | |



The Red Cross Children's Hospital, Cape Town. The location of the Paediatric Urology Workshop

Paediatric Urology Conference

The conference and workshop was conducted over 2 days, Wednesday 27th and Thursday 28th May. The program included lectures by senior consultants, senior trainees and Professor Dewan, along with demonstration surgery. The conference was noted for the participation of specialist beyond surgical, most notably the radiology staff. Subjects as varied as posterior urethral anatomy, duplex systems, genital anomalies, Wilms tumours and bladder exstrophy were presented. There was a particular emphasis on laparoscopic procedures.

In addition to the hypospadias and laparoscopic procedures performed by local experts, Professor Dewan undertook to demonstrate bladder exstrophy closure with the addition of anterior osteotomies, cystoscopy for vesicoureteric reflux on a patient who then underwent catheterless ureteric reimplant surgery. The third patient operated on by Professor Dewan was a child with a huge kidney and pelviureteric junction obstruction. All surgeries were video-telecast to the auditorium and recorded for future teaching use. Lively discussion occurred between the audience and the surgeon for each of the procedures.

Friday, 29th May was an additional session at a separate location, at which the principles of laparoscopy and various techniques were discussed, including the presentation by Professor Dewan on the percutaneously assisted incision of ureteroceles.

Acknowledgements

Particularly noted is the assistance with the registration from the University, the Medical Board of Victoria and the South African. John Lazarus and his team arranged a very productive and enjoyable workshop and social program.

Ethiopia

Background

The Kind cuts for Kids Foundation visited the Ethiopia twice in 2008, developing a relationship with the Addis Ababa University and the Black Lion Hospital. Ethiopia has a long history of medical development, and a rich history of culture and religion, Abyssinia having been the focus of the development of the Christian religion, with the country having the oldest Christian Church in the world.

The previous reports have covered the background of the country, the economic and social environment with which this project interacts, and the Paediatric Surgical Unit, the latter of which this report will expand on.

Within the Tikur Anbessa University Hospital of 560 bed central referral hospital, the Paediatric Surgical Unit is the only tertiary Paediatric Surgical Unit in the country of 75 million people. There are only two trained Paediatric surgeons, one of whom is currently taken away from clinical service in his important role as Dean of the Medical Faculty. One hundred and thirty of the hospital beds (23%) are dedicated to Paediatric patients, 40 which are for elective Paediatric surgery admissions.



The Paediatric Surgical Unit, and students, participated in ward round and tutorial style discussions on multiple topics, usually focused on patient management, but also on resources and research. Included was the Chinese visiting Paediatric Surgeon (pictured far right).

The Department of Surgery of the Faculty of Medicine, which is responsible for the training of general surgeons and undergraduate surgical education, has around 18 staff surgeons, one of whom is a Paediatric Surgeon and one of whom is trained in general surgery, but who helps provide the service. In 2004 there were only a total of 158 practicing surgeons in Ethiopia, compared to 48,000 doctors (240 per 100,000), and around 5,500 surgeons in Australia. These data show how far Ethiopia is from the minimum acceptable ratio of surgeons to population and indicates the need for specialty training in general, and subspecialty training in particular.

Medical development has been hampered by a number of conflicts and government changes, but even more-so by the brain drain that has come from the trained medical and nursing staff leaving for developed countries.

The visit of the Kind Cuts for Kids Foundation followed a request to assist with a young girl with spina bifida, a condition in which there are consequent neurological, orthopaedic, urological and bowel problems. When details of this little girl were presented to the Australian team, it was recognised that a one-off surgical cure was not possible, and it was considered that educational input to the Ethiopian team would assist beyond developing a solution for the one child.

We dealt with the same group of doctors and nurses in Ethiopia as on the previous visit, with only the anaesthetist being a different team member for the Australian contingent. Prior to the visit in January 2008, Professor Milliard Derbew, Head of Paediatric Surgery and the Dean of the Addis Ababa, was contacted regarding the prospects of including Ethiopia in the Kind Cuts for Kids program, to which he eagerly responded. Subsequently, a visit of a team of a Paediatric Surgeon, an Anaesthetist, a theatre nurse and a Paediatric Radiologist was assembled. The Ethiopian team developed a program of teaching and clinical work, which included identifying patients appropriate to the education program, mainly focussing on difficult cases of Paediatric Urology.

Paediatric Surgical Training Development

With so few surgeons and such a large population of children the work load is overwhelming, particularly with the resource limitations. Our previous report reflected on a published study of the throughput between September 1999 and August 2004, during which a total of 6070 surgical procedures were performed, accounting for 31% of all operations and 33 % of all Paediatric admissions to the hospital. Notably this only includes patients under the age of 12 years. A new case of Wilms tumour of the kidney, and an imperforate anus case occur more than once per week. A major teaching hospital in Australia would expect to see less than twenty cases of these two diseases per year, the Black Lion Hospital deal with well over 100.

Resource Limitations

Theatres Surgical Supplies

The Black Lion Hospital has a large theatre complex, but in which there are several problems. This report does not wish to be seen as critical of the deficiencies, but aims to help identify the shortfalls to enable all who are able to, work toward the solutions that will be included in the recommendations, to know of what is needed to be done.

1. Disposable Equipment
 - a. There does not to be an effected central repository of disposables in theatre.
 - b. Appropriate sutures are limited.
 - c. Appropriate Paediatric Urology catheters are limited.

2. Instruments
 - a. Instruments of good quality, suitable for Paediatric Surgery are limited
 - b. **Paediatric** Laparoscopic equipment is not available
 - c. Suitable Paediatric Urological endoscopes are not available.
3. Lighting
 - a. There are several portable lights, but most have either some or all of the globes missing.
 - b. The central operating lights either do not work or do not have globes, or both.
 - c. Many ceiling light covers are missing.
 - d. Many of the ceiling light fluorescent globes are missing or do not work.
4. Infrastructure
 - a. The flooring is damaged, increasing infection risk.
 - b. Not all scrub areas are unusable.
 - c. The plumbing to scrub sinks is in need to attention.
 - d. Water supply to the theatres is not dependable.
 - e. The central sterilizer seems to be in need of significant service.
 - f. Many drapes and gowns are in a state of disrepair.
 - g. The portable image intensifier is not working.
 - h. Theatre tables are old and often rusted.
 - i. Lithotomy attachments are unsafe.
 - j. Theatre time for Paediatric Surgery is insufficient for the need.
5. Donated Supplies
 - a. Several dozen boxes of donated items are stored in various parts of the theatre complex, the contents of which are neither easily accessible, nor documented.
 - b. Some donated items are unusable for the Ethiopian context.
 - c. There are excess supplies for needs of some items.



The lighting problems and the problems with resources to manage donations are shown in the about photos.

Radiology Services

1. Ultrasound studies are not recorded on hard copy.
2. CT scanning has to be paid for at an external service.
3. The volume of work for the department appears.
4. There are no Paediatric Uroradiology meetings.
5. There are no Paediatric Radiology subspecialty trained personal.

Anaesthetic Support

Any Unit wishing to expand their capabilities to service the public must not only develop their own access to infrastructure, but must contribute to the development of associated manpower, develop efficiencies and assisting in recruitment and training. The needs for Anaesthesia, related to Paediatric Surgery include:

1. ICU back-up is limited.
2. Supplies of disposable anaesthetic equipment are limited.
3. Anaesthetic equipment is limited.
4. Anaesthetic nurses have limited training and experience in complex Paediatric Anaesthesia.

Ward Infrastructure

1. Conditions are cramped, with large 4 patients in a single bedroom.
2. Toilet facilities are limited and in need of upgrading.
3. Supplies of disposable anaesthetic equipment are limited.
4. Anaesthetic equipment is limited.
5. Anaesthetic nurses have limited training and experience in complex Paediatric Anaesthesia.

Man-power

Paediatric Surgeons, appropriately, provide clinical care, administrative input, research and teaching. Therefore, in light of the expansion of medical student numbers and the intended development of a Paediatric Surgical training program, the already grossly deficient manpower will become more critical. Notably:

1. There are no sub-specialist Paediatric Nurses, such as a continence nurse.
2. The Paediatric interns cover the patients, limiting their education in Paediatric Surgery and the level of assistance they are able to provide the surgeons.
3. Paediatric Surgery is covered by non sub-specialty registrars (called residents).
4. Two surgeons, one of whom has had Fellowship training provide a 1 in 2 roster, consultant cover.

Other

Issues that are unique to the developing environment, which should impact on consideration of all the above difficulties include

1. The ability of families to afford to opt for treatment.
2. The limited availability of low complexity blood tests.
3. Day surgery is limited by problems with travel and community level backup.

Guide-line Development

The Black Lion Hospital conducted a workshop for the Minister for Health, the right Honourable Dr Tedros Adhanom, launched the newly developed hospital guide-lines for management. Discussions followed on the role of the Kind Cuts for Kids Foundation, both with representatives of the University, the Minister and the Bill Clinton Foundation. The role of the individuality of patients, the importance of history an examination, and the complexity of development of guide-lines at the multiples levels of service provision within the country was taken on board, with of discussion that was lead by senior members of the University.



Dr Miliard Derbew, Faculty Dean, a representative of the Clinton Foundation, the Minister for Health, Dr Tedros Adhanom and Professor Dewan discuss the Kid Cuts for Kids Foundation assistance to development of Paediatric Surgery in Ethiopia.

Research Projects

The Black Lion Paediatric Surgical Unit is notable for many things, particularly the extensive range of major Paediatric Surgical pathology, including relatively rare anomalies. Two conditions were seen in June which, in combination with cases seen as part of the Kind cuts for Kids Foundation in other countries, are to be published for the information of the international Paediatric Urology community, having provided opportunities for two papers, now near completion, on urethral duplication and caudal duplication, an impressive study of 8 cases, possible the largest series to be published.

Another project has been formulated, namely the evaluation of the outcome for diversion of the urinary tract in cases on bladder exstrophy, to review the role of this procedure in developing countries, given the poor outcome of other options and the need for multiple surgical episodes: the treatment options may need to be different in Ethiopia - considering that different may be better.

Surgical Teaching Sessions

The clinical teaching sessions were more limited than previously, but were, appropriately, more focused on systemic issues such as theatre resource management,

participation in guide-line development, theatre nurse training, and specifics of how to conduct research and publication.

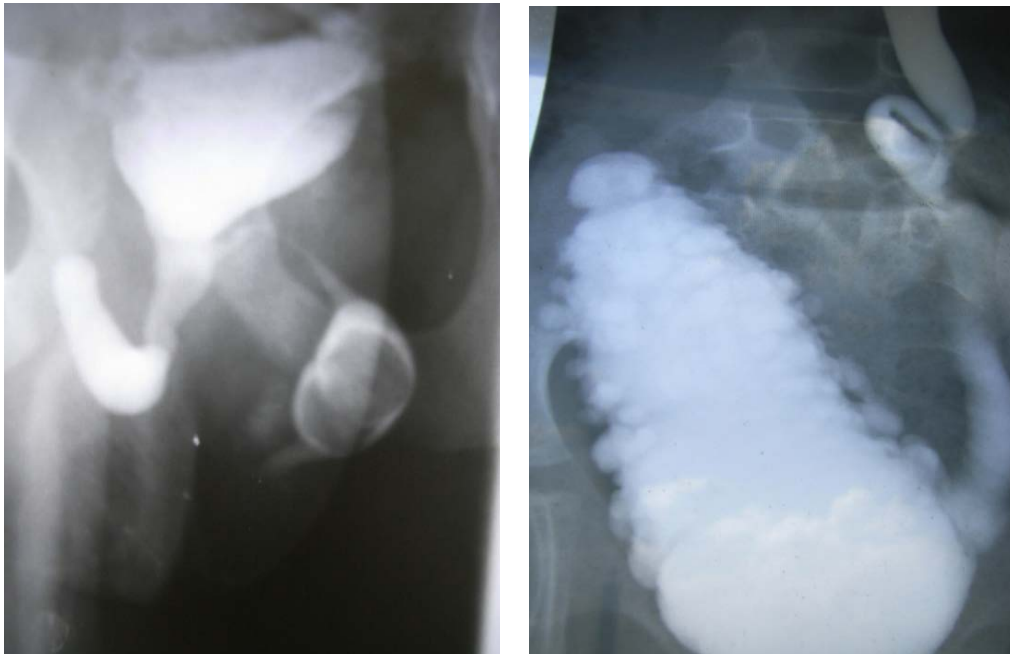
The surgical topic included:

1. Major hypospadias – bladder mucosal graft
2. Pelvic osteotomies in bladder exstrophy
3. Cosmetic outcome in bladder exstrophy
4. Bladder exstrophy closure
5. Laparoscopic diagnosis
6. Laparoscopy with limited resources
7. Intersex diagnosis and management
8. COPUM management
9. Tumour management
10. Percutaneous access
11. Managing the dying patients
12. Managing expectation of patients
13. Renal stone management
14. Caudal anaesthesia
15. Hirschsprung's radiological diagnosis
16. Caudal duplication
17. Urethral duplication
18. Radiation safety
19. Bowel obstruction
20. Sharps management
21. Operative field counting
22. Inventory management

Consultations

Large numbers of complex patients were seen and discussed during two outpatient sessions, numerous ward rounds and impromptu cases in the surgical office. A total of 62 patients were on this visit, bringing the number of different patients reviewed during the three visits to 192. Of those seen in June 2009, seven had been treated previously and had come for review. The initial consultations were conducted during a ward round on the day of arrival, followed by an outpatient session on two subsequent days. Many other patients were briefly discussed, but not directly managed.

<i>Undescended testicle</i>	2	<i>Bladder duplication + exstrophy</i>	1
<i>Intersex</i>	3	<i>Parasitic Twinning</i>	1
<i>COPUM</i>	5	<i>Urethral duplication</i>	1
<i>Intraabdominal abscess</i>	1	<i>Hypospadias</i>	4
<i>Bladder instability</i>	1	<i>Epispadias</i>	2
<i>Neuropathic bladder</i>	2	<i>Haemangioma – neck</i>	1
<i>Wilms Tumour</i>	3	<i>Duplication + volvulus</i>	1
<i>Inguinal Hernia</i>	1	<i>Nephrolithiasis</i>	1
<i>Anorectal anomaly</i>	2	<i>Malignant goitre</i>	1
<i>Rhabdomyosarcoma - neck</i>	1	<i>Urethral fistula – traumatic</i>	1
<i>Rhabdomyosarcoma – paratesticular</i>	1	<i>Hirschsprung's</i>	1
<i>Urethral stricture - posterior</i>	3	<i>Pelvic gunshot injury</i>	1
<i>PUJ obstruction</i>	2	<i>Hydatid – liver</i>	1
<i>Cystolithiasis</i>	1	<i>Sarcoma – thoracic</i>	1
<i>Bladder exstrophy</i>	1	<i>Penile amputation</i>	1



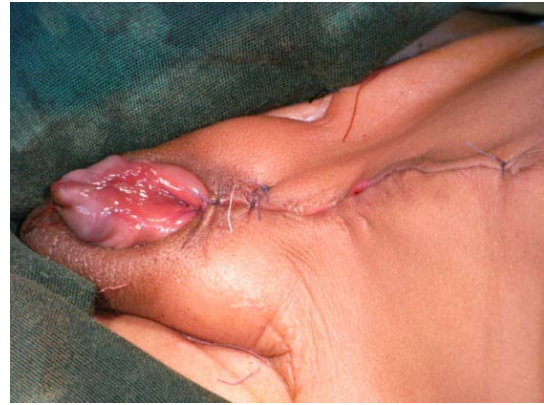
The left Xray shows the bladder draining via both the normal and accessory urethra that opened at the anal verge. On the right, a girl with spina bifida has the typical bladder appearance that, untreated, would lead to renal failure. Investigation also showed irretrievable damage to her left kidney.

Operative Surgery

A total of 22 operations were performed on 10 patients, including the incision and drainage of an abdominal abscess that had tracked to a collection under a bulging umbilicus: an operation performed on the ward.

Urethroscopy	1
Vesicoscopy	1
Vesicotomy	1
Laparotomy – nephrectomy	1
Osteotomies - bilateral anterior	2
Bladder exstrophy repair	1
Exstrophic bladder excision	1
Omphaloplasty	1
Pena urethral surgery	1
Perineal urethroplasty	1
Inguinal herniotomy	4
Abdominal abscess drainage	1
Laparoscopy	2
Gonadectomy	2
Orchidopexy – stage I FS (laparoscopic)	1
Orchidopexy – stage I FS	1

Operative Cases



A baby boy with what appeared to be the rare condition of bladder exstrophy, had with the rarer anomaly of both bladder exstrophy and a second bladder internally. His excellent intraoperative result is shown.



Limited access to theatres time necessitated the drainage of his intraabdominal abscess through the umbilicus to where it had tracked



Caudal duplication anomalies are sufficiently rare for good documentation to be essential, not only for the good care of the patient, but to enable the treating units to inform the international community of treatment options and outcomes. Thus, the Kind Cuts for Kids Foundation funded the otherwise unavailable CT scan.

Recommendations

For Paediatric Surgery in Ethiopia

Paediatric Surgical Training

1. The recently developed curriculum should be enacted.
2. Resources should be available to train and support surgery for children.
3. The teacher of Paediatric Surgery will require assistance with the training of others, which should be provided, and could be partly supplied by KCFK's
4. Junior staff should be assigned to assist with Paediatric surgery, to free up the time for surgeons to devote to teaching, to enhance the care of the patients and expand the corporate knowledge of children's surgical disease.

Theatres and Surgery

1. Within the constraints of finances and manpower, more Paediatric Surgical services and Anaesthetic should be provided in Ethiopia.
2. The Black Lion Hospital and Addis Ababa University should further develop Paediatric Surgical and resuscitation teaching of resident and medical students.
3. Assistance should be sort for improved Paediatric endoscopic and other surgical and Anaesthetic equipment.
4. Ongoing assistance should be provided by the Kind Cuts for Kids Foundation, and others, for the development of Paediatric Surgery in Ethiopia, including the development of certification by the University for the specialty, in association with the College of Surgeons of Central and East Africa.
5. Community awareness of surgical disease in children should be enhanced. Anticholinergic medication (Oxybutinin and Probanthine) should be made more readily available for the management of bladder instability and the neuropathic bladder.

Anaesthesia

1. Reinforcing fundamental points of care :
 - a. *Hygiene* e.g. reusing syringes, no airway filters, hand washing, rubbish everywhere.
 - b. *Staff protection*: gloves, eye cover, sharps disposal.
 - c. *Thermoregulation*: of vital importance in peri-operative care.
 - d. *Organisation and order*: of equipment for anaesthesia improves access and safety.
2. Practice evolution opportunities: *Caudal Analgesia*: need to train a trainer.
 - a. *Analgesia*: whilst this is resource limited there is a generally poor understanding of its importance in successful care and a lack of ownership of pain management.
 - b. *Laryngeal Mask Airways* –although this is not as simple as it seems in this environment; patient selection is complex, pharmacological differences make it less attractive, no recovery area, poor suction in the event of reflux.
 - c. Shift to *propofol* based induction.
 - d. Discouraging *inappropriate use of Suxamethonium*.

3. What the local were most interested in:
 - a. Concise reference material (Oxford Handbook of Anaesthesia/Paediatric Anaesthesia, RCH Drug Dose Guidelines).
 - b. Computer based reference material e.g. documents, power point presentations, literature that could be transferred to USB's.
 - c. Pictorial in-theatre education opportunities from the laptop.
 - d. New techniques and drugs.

KCFK's Visits to Ethiopia

1. Anaesthetist is an essential member of the team.
2. A scrub nurse should be included in the KCFK's team.
3. Disposable items of high importance for visits
 - a. Sutures
 - b. Protective eye wear
 - c. Urinary Catheters
 - d. Cystoscope equipment
 - e. Tapes for catheters
 - f. Diathermy pads
 - g. Diathermy handles
4. Prearranged clearance through customs.
5. HIV emergency kit.
6. Protective eye-wear is an essential item of equipment and donation.
7. Suture materials.
8. Staff should be assigned to the theatres in Addis.
9. An associated should be developed with the airlines that travel to Addis

The Sponsors

The visit to South Africa was sponsored by the Kind Cuts for Kids Foundation, assistance from Qantas, and surgeons in Cape Town.

The visit to Ethiopia has again been support by the Ministry of Health in Ethiopia, the Black Lion Hospital, donations to the Kind Cuts for Kids Foundation from the Rotary Clubs of Manningham and Preston, and the Society for Children Inoperable in Mauritius, plus support from the Qantas airline.

Several donors provided donations-in-kind, Kendall (catheter bags), Bard (catheters), Conmed Linvatec (diathermy handles + needle points), Ansell (sterile gloves) Sunshine Hospital Theatre staff (collection of diathermy pads and Betadine).