



REPORT ON THE **10th** OPEN-HEART SURGERY SKILLS TRANSFER WORKSHOP

HELD AT

UGANDA HEART INSTITUTE
MULAGOHOSPITAL COMPLEX



COLLABORATING ORGANISATIONS

- Chain of Hope – United Kingdom
- Gift of Life International (GOLI)
- Gift of Life Uganda (GOLU)
- Rotary Club of Nateete, Kampala



DATE: 22nd July – 2nd August, 2011

ACRONYMS.

1. ASD Atrial Septal Defect
2. EMF Endomyocardial Fibrosis
3. COH Chain of Hope
4. GOL I Gift of Life International
5. GOL U Gift of Life Uganda
6. HCU High Care Unit
7. ICR Intracardiac repair
8. ICU Intensive Care Unit
9. LVOT Left ventricular outflow tract
10. MOTH Main Operating Theatre
11. OHS Open-Heart Surgery
12. PDA Persistent Ductus Arteriosus
13. PHT Pulmonary Hypertension
14. TEE Transoesophageal echocardiography
15. TOF Tetralogy of Fallot
16. UHI Uganda Heart Institute
17. VSD Ventricular Septal Defect

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1. OVERVIEW

An 11 days Open-heart surgery (OHS) skills transfer workshop was held at Uganda Heart Institute (UHI), Mulago Hospital Complex from 22nd July – 2nd August, 2011. The workshop was conducted by a combined cardiac team from Chain of Hope (COH), United Kingdom (UK) lead by Prof. Magdi Yacoub. The team was facilitated by COH's charity with support from Gift of Life International and Rotary Club of Nateete, Kampala. The professionals came from various institutions in UK.

The visiting team members (17 persons) resided at the Golf Course Hotel about a kilometer away from Mulago Hospital. It comprised of two cardiac surgeons, one cardiologist, two cardiac anesthesiologists, two intensivists, 5 cardiac ICU nurses, one cardiac theatre nurse, one biomedical engineer, two coordinators and a trustee (*see Appendix II*).

The UHI Cardiology team was lead by Dr. Lwabi Peter (Consultant Paediatric Cardiologist) while Cardiac surgical team was headed by Dr Mwambu Tom, (Consultant Cardiovascular and Thoracic surgeon) while the.

2. OBJECTIVE.

The objective of the workshop was;

1. To review the progress made in pre- intra- and postoperative skills in the management of simple and complex cardiac surgical procedures at UHI (RACHS- 1 category; Risk 2).
2. To introduce more complex open-heart surgeries at UHI such as single ventricle repairs (RACHS- 1 category; Risk 2) and Ross procedures.
3. To introduce the use of processed Homografts at UHI.

3. PATIENTS AND OPERATIONS

A total of 10 patients were scheduled for surgery and were all successfully operated upon. There were four case of ventricular septal defects (VSD) who underwent patch closure, two cases of Atrial Septal Defect (ASD) were repaired (one had an unroofed coronary sinus). There was one case of Tetralogy of Fallot who underwent total correction. Two cases underwent resection of subaortic spur/membranes (one had a VSD), and one patient with severe aortic regurgitation underwent Ross Procedure using a 25mm Pulmonary homograft in the pulmonary position.



Figure 1: Four and a half year old Sitenda Immaculate (*right*) with mother (*center*) recovering in the ICU following VSD closure and PDA ligation. UHI Gertrude Munduru (*left*) encourages



Figure 1: (*Left to right*) Cardiac Surgeons; Dr Mwambu Tom, Prof. Magdi Yacoub, Dr. Elisabeth Vibeke, and Dr Omagino John. A young boy with EMF stands amidst them in the centre.

All patients were admitted at least two days prior to surgery and reassessed for fitness for surgery including review of diagnosis. Attendants to patients were counseled and informed about the procedure their children were to undergo. Meals were provided for all patients and one attendant each while on the ward and in the ICU.

All equipment for use during the workshop was assessed by the visiting biomedical engineer in collaboration with the local biomedical engineer and biomedical technician.

Both crystalloid and blood cardioplegia were selected for use on the patients depending on the case. Crystalloid cardioplegia was cooled using ice slash and delivered from a plastic bottle under pressure. Blood cardioplegia was cooled and delivered from the heart-lung machine with help of a cardioplegia delivery system.

At all times the local team was given opportunity to participate in the surgeries including operation, perfusion and intensive care nursing.

Intra-operative Transoesophageal echocardiography (TEE) was performed for all cases with the guest team giving opportunity to the local team anaesthesiologists to attain skills.

The first ever Glenn procedure (univentricle repair) for Tricuspid atresia as well as the Ross Procedure for aortic valve disease were successfully performed by Prof. Magdi Yacoub. The 25mm Pulmonary homograft used for the Ross procedure performed on Nakubulwa Phiona (10year 8months old female) was donated to Chain of Hope by CryoLife®. It was transported in an ice box with dry ice and stored at negative 80 degrees centigrade only arrival at Mulago prior to use.



Figure 2: Prof. Magdi Yacoub (*right*) performing a Ross Procedure assisted by UHI surgeons.



Figure 3: UHI ICU nurse Bbosa Flavia (*left*) attends to Nakubulwa Phiona (*center*) following Ross Procedure as cardiothoracic surgeon Dr. Mwambu Tom (*right*) looks on.

Following operation, all patients were initially admitted to the intensive care unit (ICU) for 48 to 96 hours prior to transfer to the high care unit (HCU) and then later to the ward. All patients did well postoperatively and were discharged by the 8th post operative day on average. One patient who underwent resection of a subaortic membrane developed postoperative mediastinal bleeding and underwent re-exploration to achieve haemostasis. All patients were discharged in a good general condition.



Figure 4: Kibedi Joy , (4¹/₂ yrs) old female (*centre*) undergoes physiotherapy with help from ICU nurse Madina Nalubega (*Left*) and Physiotherapist Makweta Bob (*right*).

During the workshop the team conducted a series of educational sessions with the doctors, nurses, anaesthesiologists, and perfusionist including a workshop for the nurses a day prior to commencing the operations.

Over 75 patients were screened during the mission with particular interest in cases of EMF. A register for EMF cases was started with the purpose of holding a mission in the near future to offer surgical treatment to some of the cases and start a centre for surgical correction of EMF in East Africa.

4. STAFFING

The visiting team comprised of two cardiac surgeons, one cardiologist, two cardiac anesthesiologists, two intensivists, 5 cardiac ICU nurses, one cardiac theatre nurse, one biomedical engineer, two coordinators and a trustee (*see Appendix II*). Like in other workshops the UHI professional staffs were equally matched to the visiting team so as to enable adequate transfer of skills (*see Appendix III*).



Figure 5: Guest ICU nurse Janet Taylor (*left*) shares a moment with UHI ICU nurse Atugonza Constance (*right*).



Figure 6: Visiting cardiologist Dr. Bent Kristensen (*right*) discusses a case with UHI cardiologist Dr. Lubega Sulaiman (*left*)

All health professionals participating as the local team were UHI staff. No nurses were recruited from other units in Mulago Hospital as has been in other workshops to back up the UHI team. This was deliberately done to test UHI's capacity as an entity. There was an exemplary performance by the nursing team in the ICU and theatre. This was greatly contributed to by the large number of nurses who have undergone their fellowship training in cardiac nursing.

Support staff from Mulago Hospital were however, called upon to back-up the UHI team in areas of laundry, cleaning, transport and security.

5. MEDICAL SUPPLIES, EQUIPMENT AND MAINTENANCE.

In order to ensure adequate availability of supplies, all the cases were prepared as elective cases with both teams exchanging patient information via internet connectivity to help in selection of specialized sundries especially so for perfusion. Drugs used in the theatre, ICU and during perfusion were supplied by both COH and UHI with some specialized. The perfusion sundries used were mainly provided by the visiting team (COH).

Blood products were readily available throughout the workshop and in adequate quantities and were directly obtained from by Nakasero Blood Bank. We wish to congratulate the laboratory staff at UHI and management and staff at Nakasero Blood Bank for adequately facilitating the workshop.

There were few minor power interruptions during the workshop. The inverter system was however, able to cover up the interruptions without much interference to service delivery. The blood gas cartridges for IRMA (TruPoint) blood Gas analyzers supplied under GOLI's support to UHI were used both in the operating theatre and ICU for blood gas analysis.

It was quite evident that a single monitor in the operating room was insufficient. A slave monitor is required in the operating room to facilitate surgical operations by enabling the perfusionist and surgeon view the patients' parameters with greater ease.

6. TRAINING MEDICAL STUDENTS AND NURSES.

Makerere University post-graduate-students rotating in cardiology had the opportunity to witness complex open-heart surgery and understand the principals behind cardiopulmonary bypass and its physiology. They also received teachings in transoesophageal echocardiography (TEE) techniques from the visiting consultant anesthesiologist, Dr. Garvin Wright. The presence of a camera and viewing screen in the operating room continued to be of help in facilitating teaching which would otherwise have been difficult considering the large amount of equipment and personnel in the operating room.

Trainee nurses from other hospitals had the opportunity to witness and learn new theatre techniques in situations of complex surgical procedures including instrument set up and types of surgical instruments.

7. WELFARE.

Meals for the guests were provided by Rotary club of Nateete and COH in collaboration with GOLI. UHI availed a refridgerator, coffee percolator and microwave to facilitate the services.

UHI provided the local team with morning and evening teas as well as during the night shifts.

8. OBSERVATIONS.

- a. This is the first time COH performs surgeries at UHI. The team was impressed with the level of skill the health professional staff at UHI had as well as their ability to adapt new skills easily. The team supervised the UHI nurses in the ICU while the UHI nurses did most of the nursing. The local Perfusionists ably run the heart-lung machine even during the complex surgeries. The local surgeons prepared the cases, weaned them off bypass and closed all the patients. In addition they were each supervised operating a case.
- b. The Vivid *-i* portable echo machine brought in by the visiting team made the work environment in the operating room more comfortable by availing more space. UHI will require a robust machine of this nature in future. It has the advantage of being portable and

can be used in the operating room, during outreaches and for regular out-patient echocardiography investigations.

9. WAY FOWARD

The visiting and local teams held daily debriefing meetings in the operating room and ICU as a prerequisite to the days work and to ensure that all the staff was in agreement with the day's procedures. This was found to be of great help in improving the care of patients undergoing OHS at UHI.

The following are recommendations for continued improvement of OHS at UHI:-

- a) The local team needs to perform more numbers of complex cases (so far practiced in) between missions and on a regular basis so as to improve skill and maintain the confidence so far built.
- b) Completion of the cardiac theatre currently under construction be expedited so as to avail space for more regular OHS.
- c) There is an urgent need to recruit and train an intensivist at UHI to take care of the patients in the ICU following surgery so as to relieve the burden on the Cardiac surgeons. An offer to train an intensivist was made by Prof. Magdi Yacoub under COH's charity and will need to be followed up.

10. APPRECIATION

We are grateful for the assistance rendered by the visiting team members from UK, Rotary Club of Nateete, GOLU, GOLU, Mulago National Referral Hospital, and Nakasero Blood Bank for the support given in making this workshop a success. In particular we wish to extend our sincere appreciation to Prof. Magdi Yacoub for the support rendered by Chain of Hope towards UHI and the people of Uganda. Many thanks go to Dr Elisabeth Vibeke for the training opportunity given to the local surgeons and to Dr. Isabeau Walker and Maura Anne O'callaghan for the training rendered to the anaesthesiologists and ICU nurses respectively. We continue to thank the Government of Uganda for the financial assistance rendered to the UHI.

Report compiled by:



Signed.....

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APPENDIX I

Chain of Hope - UHI Skills Transfer Workshop

PATIENT LIST

Date: Friday 22nd July to Tuesday 2nd August, 2011

DAY	Date	Case No.	Name	Age	Sex	Diagnosis	Operation	SURGEONS			On Call	On Call	
								1st	2nd	3rd	Surg	Card	
Mon	25-Jul	1	Kibedi Joy	4yr 6mo	F	ASD Secundum, Corneal scar	Pericardial patch closure of ASD	Vibeke	Mwambu	Oketcho	Mwambu	Twalib	
Mon	25-Jul	2	Sitenda Immaculate	4yr 6mo	F	Trisomy 21, Perimembranous VSD with Large PDA (8mm)	Dacron patch closure of VSD + PDA Ligation	Vibeke	Oketcho	Manyilirah			
Tue	26-Jul	3	Maweje Nabiru	1yr	M	Perimembranous VSD with Small PDA	Dacron patch closure of VSD + PDA Ligation	Vibeke	Mwambu	Oketcho	Oketcho	Okello	
Tue	26-Jul	4	Ankunda Wilfred	2yr 6mo	M	Mod sized Muscular VSD, no PHT	Bovnie pericardium patch closure of VSD	Oketcho	Mwambu	Vibeke			
Wed	27-Jul	5	Sarah Evas	23mo	F	Coronary Sinus ASD with Unroofed coronary sinus	Pericardial Patch closure of ASD + re-routing of coronary sinus to right atrium	Vibeke	Mwambu	Manyilirah	Manyilirah	Lubega	
Wed	27-Jul	6	Nkalubo James	4yr 6mo	M	TOF, severe infundibular stenosis, Good sized confluent branch Pas	ICR, infundibular resection + Dacron patch closure of VSD	Yacoub	Mwambu	Oketcho			
Thurs	28-Jul	7	Nakubulwa Phiona	10yr 8mo	F	RHD, Sever AR with mild MR	AVR(Ross Procedure) with 25 mm Pulmonary Homograft	Yacoub	Mwambu	Oketcho	Mwambu	Sebatta	
Thurs	28-Jul	8	Mwebingwa Ariana	1yr	F	Tricuspid Atresia with ASD and VSD	Bidirectional Glenn	Yacoub	Oketcho	Manyilirah			
Fri	29-Jul	9	Wakisa Jackline	8yr 10mo	F	Perimembranous VSD with subaortic spur	Bovine pericardium patch closure of VSD with resection of LVOT fibrous spur	Mwambu	Oketcho	Vibeke	Oketcho	Lwabi	
Fri	29-Jul	10	Keni Emmanuel	15yr	M	Subaortic Membrane with hypertrophic interventricular septum	Resection of Subaortic membrane and hypertrophic septal muscle	Yacoub	Oketcho	Mwambu			
Sat	30-Jul					Postoperative Management					John	Mondo	
Sun	31-Jul	Departure of Guests						Postoperative Management				William	Twalib
Mon	1-Aug							Postoperative Management				Mwambu	Okello
Tue	2-Aug	Departure of Guests				Postoperative Management						Michael	Lubega

APPENDIX II



CHAIN OF HOPE (UNITED KINGDOM) - VISITING CARDIAC TEAM JULY, 2011

Roles	Names	Dates Available	Passport Type
Surgeon (1)	Vibeke Elisabeth Hjortdal	Sunday 24 th July – Saturday 30 th July	DENMARK
Surgeon (2)	Sir Magid Yacoub	Wednesday 27 th July – Friday 29 th July	UK
Perfusionist (1)	Stanley Brown	Sunday 24 th July – Sunday 31 st July	UK
Anaesthetist (1)	Isabeau Walker	Sunday 24 th July – Sunday 31 st July	UK
Anaesthetist (2)	Wright Garvin	Wednesday 27 th July – Friday 29 th July	UK
Intensivist (1)	Cleopatra Patterson	Sunday 24 th July – Sunday 31 st July	JAMAICA
Scrub Nurse	Julie Plumridge	Sunday 24 th July – Sunday 31 st July	UK
ICU Nursing Team Member – Team 1	Maura Anne O'callaghan	Sunday 24 th July – Monday 1 st August	IRELAND
ICU Nursing Team Member – Team 1	Janet Taylor	Sunday 24 th July – Sunday 31 st July	UK
ICU Nursing Team Member – Team 1	Ines Souto	Sunday 24 th July – Sunday 31 st July	PORTUGAL
ICU Nursing Team Member – Team 1	Tara Hesp	Sunday 24 th July – Sunday 31 st July	New Zealand
ICU Nursing Team Member – Team 2	Karen Anderson	Wednesday 27 th July – Tues 2 nd August	JAMAICA
Intensivist (2)	Intikhab Zafarellah	Wednesday 27 th July – Tues 2 nd August	UK
Cardiologist	Dr Bent Kristensen	Sunday 24 th July – Saturday 30 th July	DENMARK
COH Mission Coordinator (1)	Emma Scanlan	Sunday 24 th July – Saturday 30 th July	UK
COH Mission Coordinator (2)	Lisa Yacoub	Sunday 24 th July – Sunday 31 st July	UK
COH Trustee	Gary Gilmour	Wednesday 26 th July – Sunday 31 st July	UK

APPENDIX III

Uganda Heart Institute - Team

July 2011

Name	Designation	Hospital	Email
John Omagino	Cardiac Surgeon/ Director	Mulago/ UHI	joomagino@yahoo.com
Cephas Mijumbi	Anaesthesiologist	Mulago/ UHI	mijumbi2005@yahoo.com
Mwambu Tom	Cardiac Surgeon	Mulago/ UHI	mabisitpm@gmail.com
Michael Oketcho	Cardiac Surgeon	Mulago/ UHI	mcoketcho@hotmail.com
Manyilirah William	Resident/ Cardiothoracic Surgery	Mulago/ UHI	manywilliam@gmail.com
Peter Lwabi	Cardiologist /Paediatric	Mulago/ UHI	plwabi@yahoo.com
Sulaiman Lubega	Cardiologist /Paediatric	Mulago/ UHI	lubsk2001@yahoo.com
Aliku Twalibu	Resident/ Paed Cardiology	Gulu Univ / UHI	aliku90@yahoo.com
Okello Emmy	Resident/ Adult Cardiology	Mulago/ UHI	emmkol@hotmail.com
Enoch Kibalizi	ICT Technician	Mulago/ AFNET	kibalizi@yahoo.com
Mondo Charles	Cardiologist /Adult	Mulago/ UHI	eharles_mondo@yahoo.com
Sebatta Elias	Cardiologist /Adult	Mulago/ UHI	eliasmse@yahoo.com
Atweeta Lillian	ICU Nurse	Mulago/ UHI	
Atugonza Constance	ICU Nurse	Mulago/ UHI	atugonzacostance@yahoo.com
Ayaa Kate	ICU Nurse	Mulago/ UHI	
Mwima Rachael	ICU Nurse	Mulago/ UHI	
Nakisige Monica	ICU Nurse	Mulago/ UHI	
Namanda Cissy	ICU Nurse	Mulago/ UHI	ICU
Atukwaste Joseph	ICU Nurse	Mulago/ UHI	atukjosef@gmail.com
Munduru Jane F	ICU Nurse	Mulago/ UHI	jane francesm07@gmail.com
Musoke Leticia	Ward Incharge	Mulago/ UHI	
Nabulya Edith	ICU Nurse	Mulago/ UHI	enabulya@gmail.com
Nalubega Madina	ICU Nurse/ Deputy Incharge	Mulago/ UHI	nalubegamadina@yahoo.co.uk
Namayanja Berna	ICU Nurse	Mulago/ UHI	namayanja@yahoo.com
Namuli Flavia	ICU Nurse/Incharge	Mulago/ UHI	bbosaflavia@yahoo.com
Namukwaya Harriet	ICU Nurse	Mulago/ UHI	
Nawakonyi Susan	ICU Nurse	Mulago/ UHI	
Nyakakye Catherine	ICU Nurse	Mulago/ UHI	
Byabakama Margaret	ICU Nurse	Mulago/ UHI	byabakama@yahoo.com
Samalie Kitoleeko	ICU Nurse/Incharge	Mulago/ UHI	sammmy_kits@yahoo.co.in
Munduru Gertrude	Scrub nurse/ OR Incharge	Mulago/ UHI	
Obwin John	Scrub nurse	Mulago/ UHI	obwinjohn@yahoo.com
Oyang Ben	Scrub nurse	Mulago/ UHI	oyangbenard@yahoo.com
Muraa Pascalina	Perfusionist	Mulago/ UHI	
Wambuzi Sam	Perfusionist	Mulago/ UHI	
Egwayu Nancy	Physiotherapist	Mulago/ UHI	
Kasita Richard	Physiotherapist	Mulago/ UHI	
Makweta Bob	Physiotherapist	Mulago/ UHI	
Yonah Oboth	Administrator	Mulago/ UHI	yonasoboth@yahoo.com
Bukenya Anne	Secretary / Assist Co-coordinator	Mulago/ UHI	anitahbukunya@yahoo.com
Milad Nashat	Biomedical Engineering/UHI	Mulago/ UHI	melad.nashat@yahoo.com
Malungu Robert	Biomedical Technician/UHI	Mulago/ UHI	
Afidra Philip	Pharmacy	Mulago/ UHI	
Faisal Nyanzi	Laboratory	Mulago/ UHI	
Ngobi Bob	Stores	Mulago/ UHI	
Birungi Susan	Stores	Mulago/ UHI	bmiruho@gmail.com