

DEPARTMENT CARDIOTHORACIC SURGERY

Head of Department: Prof Francis E Smit

I. PERSONNEL AND ACADEMIC

1. PERSONNEL

a) *Medical*

Head of Department : Prof F E Smit
Principal specialist : Prof W J de Vries
Senior specialists : Dr M A Long
Dr C J Jordaan
Senior specialist (sessions) : Dr A G Linegar
Registrars : Drs R Schulenburg, J Brink, A Stroebel, T de-Huis
and I de V Jonker.

b) *Non-medical*

Manager Clinical
Technology : Mrs M Jansen van Vuuren
Control Technologist : Mr D Bester
Chief Technologist : Mr N van den Heever
Senior Technologist : Mrs M Retief
Senior Technologists
(sessions) : Mrs M Fuls and Mr J Fourie
Student Technologists
3rd year : Me A Human, Me L Liebenberg, Mr C Pieterse
and Mr Z Muza.

c) *Professional*

Specialist Medical Scientist: Mr J J van den Heever
Assistant Director Medical
Scientist : Dr L Botes (left end July)
Medical Scientist : Me C Prins (appointed Aug 06)

d) *Administrative*

Administrative Manager : Mrs J M Erasmus
Secretary : Mrs J L van der Merwe
Senior Administrative
Officer : Mrs E Smith

e) *Social and general*

We have a monthly mortality, morbidity and management meeting, attended by administrative personnel, nursing service managers for the ward, theatre and ICU, perfusionists, registrars en surgeons and specialists from other disciplines.

2. ACADEMIC ACTIVITIES

a) Teaching

(i) Undergraduate teaching

We are not involved in the present curriculum, a situation that must be re-evaluated.

(ii) Postgraduate teaching

We initiated our 5 semester curriculum to address the requirement of part three of the M Med. During this three year cardiothoracic curriculum we endeavour, in a formalized way, to cover the fields of paediatric cardiac surgery, adult cardiac surgery and thoracic surgery in a systematic and organised way. We have six monthly formal appraisals (written, clinical and oral), a logbook and a wet lab system that will contribute to the final assessment of the M Med candidate. Registrars are allocated to participate in clinical and laboratory research.

The training program includes combined weekly meetings between our department, adult- and paediatric cardiology, pulmonology and oncology as well as a multi-disciplinary weekly journal club.

Prof Smit was the Chairman of the Organizing committee of the SAHA Congress in Somerset West in November 2006 and he organised the yearly Hannes Meyer Symposium in April 2006.

b) Research

Projects:

Endothelial function as a predictor of post intervention outcomes in coronary artery disease. (One M.Med.SC and four M Tech studies registered and 4 B Tech projects involved)

Histological comparison of the effects of warm ischemic times on harvested homografts.(One M Tech and one PhD registered)

A comparative assessment of the calcification potential and cross-linking stability of three different treatment modalities of bovine pericardium and one commercially available product.(One M.Sc registered)

A multicentre experience with the irrigated radiofrequency Maze procedure for permanent atrial fibrillation undergoing CABG procedure. (One PhD registered)

Evaluation of a new mitral ring design in the mitral position of sheep. (Completed for Glycar Pty Ltd)

A model for the development of thoracic surgery in Central South Africa. (One PhD registered)

Assessment of the tissue engineered Adapt® treated bovine pericardial patch for cardiac repair procedures (BioMD Limited-Study).

3. ATTENDANCE OF CONGRESSES/COURSES AND PAPERS PRESENTED

a) Papers

Pulmonary Hypertension in Ventricular Septal Defect and atrioventricular septal defect Revisited. SAMJ 2006,96:1123
Smit FE, Brown SC, Botes L, Schulenburg R, Prins C.

Percutaneous closure of ventricular septal defects in childhood. SA heart; 2006; 22-28.
Brown SC, Smit FE, Bruwer AD

A Multi-centre experience with irrigated radiofrequency Maze procedure for permanent Atrial Fibrillation. SA heart Journal, may 2006.
Fulton J O, Smit F E, Kleinloog R, et al.

A Multi centre South African experience with Radiofrequency Maze Procedures. SAMJ 2006, 96: 1125
Fulton JO, Smit FE, Kleinloog R et al.

Stroke after Coronary Bypass. SAMJ 2006; 96:10
De Vries W J, Brink J, Long M A, Smit F E.

Coronary Artery Bypass in a High-risk population. SAMJ 2006; 96:10
De Vries W J, Long M A, Smit F E.

The first 400 cases of coronary artery bypass without the aid of Cardiopulmonary bypass.
De Vries W J.

Homograft Heart Valve Banking in SA: The Bloemfontein and Pretoria experiences.
Van den Heever J J, Kuit G.

b) Congresses and courses attended

XVI Rocky Mountain Valve Symposium; Missoula, Montana, USA; July 2006,
Dr M A Long.

Senior Management Service Conference: Free State Provincial Government:
Sand du Plessis Theatre, Bloemfontein; 2006; Prof F E Smit

5th EACTS/ESTS Joint Meeting; Stockholm, Sweden; 09-13 September 2006;
Prof F E Smit.

Waterson Lecture and Symposium for Prof Marc de Leval; Great Ormond Street Hospital for Children, London, UK; 21-22 April 2006; Prof F E Smit.

SA Heart Congress; The Lord Charles Hotel, Somerset West, Cape Town; 29 October to 1 November 2006; Prof F E Smit, Prof W J de Vries, Drs R Schulenburg and J Brink, Mr D Bester (Technologist) and 3 ICU Nurses.

Faculty Forum; Faculty of Health Science, UFS, August 2006; Prof F E Smit, Prof W J de Vries, Drs M A Long, C J Jordaan, R Schulenburg, J Brink, A Stroebel and T de-Huis.

Hannes Meyer Registrars Symposium; Faculty of Health Science, UFS; April 2006; Prof F E Smit, Prof W J de Vries, Drs M A Long, C J Jordaan, R Schulenburg, J Brink, A Stroebel, T de-Huis and I de V Jonker

Workshop of South African Transplantation Society (SATS) titled: "Controversies in Transplantation"; The Western Cape Hotel and Spa, Arabella Country Estate, Kleinmond; October 2006, Mr J J van den Heever

4. PERSONNEL ACHIEVEMENTS

a) Committees

Prof F E Smit:

- Society of Cardiothoracic Surgeons SA EXCO
- Medical Association of SA Full Time Practise Representative, UFS
- President SA Heart Association Free State Branch
- Practise Management Committee, UFS
- PAB Universitas Private Hospital

5. OTHER ACHIEVEMENTS

Prof F E Smit nominated by European Association of Cardio Thoracic Surgeons and accepted by American Association Thoracic Surgeons as Active Member.

6. FUTURE PROSPECTS

Our self initiated research projects in conjunction with reputable international collaborators are set to come to fruition in 2007 and 2008. The number of higher degrees registered in the department should result in a healthy number of publications.

We are absolutely dedicated to expel the myth that registrars can be trained in cardiothoracic surgery, without doing enough clinical cases for whatever reason. We shall strive to equal or better the proposed standards set by the European Board of Thoracic Surgery.

The rotation of registrars through Oxford, overseen by Prof S. Westaby, will start in 2007. This will give registrars international experience and exposure to end-stage cardiac disease.

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II. PUBLICATIONS

A. SCIENTIFIC PUBLICATIONS

1. *Full-length articles*

Non-subsidy-bearing publications

A Multi-centre experience with irrigated radiofrequency Maze procedure for permanent Atrial Fibrillation. SA Heart Journal, May 2006.

Fulton J O, Smit F E, Kleinloog R, et al.

Percutaneous closure of ventricular septal defects in childhood. SA Heart; 2006; 22-28.

Brown SC, Smit FE, Bruwer AD

Abstracts

Pulmonary Hypertension in Ventricular Septal Defect and atrioventricular septal defect Revisited. SAMJ 2006,96:1123

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A Multi centre South African experience with Radiofrequency Maze Procedures. SAMJ 2006, 96: 1125

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Van den Heever J J, Kuit G.

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III. SERVICE DELIVERY

1. DUTY ROSTER

WEEKLY PROGRAM OUTLINE															
Time	Monday			Tuesday			Wednesday			Thursday			Friday		
06:30	Registrar Round			Registrar Round			Registrar Round			Registrar Round			Registrar Round		
07:00										Academic Round			Handover/Planning		
07:30	Handover/Planning			Handover/Planning			Handover/Planning						Ward Round (working)		
08:00	ICU/Ward Round (working)			ICU/Ward Round (long)			Ward Round (working)						M and M		
08:15	Theatres:		Office	Theatres:			Theatres:		Animal	Theatres					
08:30	Cardiac	Cardiac	Prof Smit	Paediatric	Cardiac		Paediatric	Cardiac	Lab	Thoracic	Cardiac				
09:00	Prof de	Private	Rounds In Pelomomi Dr Jordaan	Prof Smit	Prof de		Dr Long	Prof de	Prof			Paediatric Cardiology			
09:30	Vries	Or		Vries	Vries			Vries	Smit						
10:00		Paediatric							Dr			Adult cardiology			
10:30		Dr Long							Jordaan						
11:00									Dr	Dr Jordaan Dr Long					
11:30									Schul-	Dr Linegar					
12:00			Oncotherapy					enburg			Office	Outpatients			
12:30			Rounds								Prof Smit	Consultants			
			Dr Jordaan								Prof de Vries	Registrars			
13:00	Theatres:		Office	Theatres:		Office	Office		Theatres:		Office			Registrar	
13:30	Cardiac or	Paediatric	Prof de Vries	Paediatric	Thoracic	Prof de Vries	Prof Smit/Prof de Vries/Dr Long		Major thoracic	Cardiac	Dr Long			Admin	
14:00	Paediatric	Dr Long	Dr Long	Prof Smit/	Dr Jordaan		Pulmonology		Dr Linegar/	Prof		Theatres:		Prof Smit	
14:30	Training	Or					Adult Cardiac Training		Dr Jordaan	Smit		Cardiac	Cardiac		
15:00	List	Cardiac										Emergency	Private		
15:30	Prof Smit	Private													
16:00			Admissions				Journal Club/Lectures				Admissions				
16:30															
17:00			Ward Rnd				Ward Round				Ward Rnd			Ward rnd	
17:30			ICU Round				ICU Round				ICU Round			ICU Rnd	
18:00															

2. CLINIC AND LABORATORY STATISTICS

Tissue Laboratory

A total of 91 aortic valves, 43 pulmonary valves and 11 pulmonary bifurcations were dissected out of 91 donor hearts. From these, 75 valves were not fit for use due to HIV/venereal diseases (24), Positive cultures (3), calcification/atherosclerosis/pathology (34) and sufficient amounts of certain sizes (14).

During 2006, a total of 30 aortic and 31 pulmonary allografts were cryopreserved for clinical use. Twenty of these valves were implanted locally and 38 valves(20 aortic & 18 pulmonary) were distributed to six other units within South Africa. There appears to be an increasing demand for these valves to be transplanted into recipients, while the availability of suitable valves remains extremely limited due to various reasons.

A new phase in the processing of these valves by using DMSO as cryoprotectant instead of Glycerol was entered into during the course of 2006, and the first such valve was implanted by the end of the year.

Approximately 40 locally prepared bovine pericardial patches were used in our unit in different cardiac procedures during this period, while an estimated 110 patches were delivered to other units. About 100 samples of Gluteraldehyde were also used and distributed for fixation of autologous pericardial tissue during repair procedures.

Amino acid substrates (± 10), to optimize myocardial energy levels, were prepared and used in clinical procedures.

3. IN- AND OUT-PATIENTS

Inpatients	745
Outpatients new	215
Outpatients Follow-up	536

		Mortality
Cardiac Adult	374	6.9%
Cardiac Pediatric	135	6.6%
Thoracic	236	1.6%
Total	745	5.2%

4. OPERATIVE INTERVENTIONS

CARDIAC ADULT					
Procedure	Data	Mortality	Procedure	Data	Mortality
AVR	27	1	CABG and DVR	11	2
MVR	17		CABG and Aneurysm repair	2	
MVR and Maze	15	3	CABG and Maze	2	1
MVR and Tricuspid valve repair	8		CABG and VSD	3	2
MVR, Tricuspid valve repair and Maze	1		Cardiac tumor	1	
TVR	1		Aortic root	1	1
Tricuspid valve repair and Maze	1		Left ventricle aneurysm	1	
Tricuspid valve repair and IVC	1		Asc Ao Aneurysm	2	1
DVR	12		Aneurysm repair	2	
DVR and Tricuspid valve repair	2	1	Sub Mitral Aneurysm	2	
DVR and Maze	1		Aortic dissection	1	1
Aortic valve repair	2		Post infarction VSD	1	
Mitral valve repair	14		HOCUM	2	1
Pulmonary valve repair	1		LA and RA miksoma	3	
CABG	110	7	Pericarditis	1	
OPCAB	111	3	Pericard effusion drainage	2	
CABG and AVR	12		Total	374	26
CABG and MVR	11	2			

PAEDIATRICS					
Procedure	Data	Mortality	Procedure	Data	Mortality
ALCAPA	4	1	MV repair	1	
Ao Arch, PDA, VSD and AS	1		MV and TV repair	1	
Aortic Arch Aneurysm	2		MVR and Tricuspid valve repair	1	
Aortic Root	2	1	PA Banding	3	1
AS and PDA	1		PAPVD	2	
ASD	12		PDA	17	
AV kanaal	9		Pulm atresie VSD	1	
AVR and VSD	2		RVPA conduit	10	
AVSD	1		RVPA and Maze	1	
Blalock Tausig shunt	1		RVPA and VSD	1	
Central shunt	1		Sub Aortic Membrane resection	3	
Coarctation	8	1	TCPC	1	
DORV	5	2	Tetralogy	6	
DORV and Rastelli	1		Truncus	2	
Double outlet valve replacement	3	1	VSD	21	1
DVR	2		VSD and ASD	1	1
Expl Inferior Pulm coron	1		VSD and Rastelli	1	
Fontan	1		Total	135	9
Glenn shunt	4				
MBT shunt	1				

THORACIC					
Procedure	Data	Mortality	Procedure	Data	Mortality
Biopsy	1		Oesofagus rupture	1	
Biopsy sternum	1		Oesofagus tumor	1	
Broncho pleural fistel	2		Pacemaker	2	
Bronchoscopy	10		Pleural biopsy	9	
Bronchoscopy FO	4		Pleural effusion	5	
Bullectomy	2		Pleurectomy	1	
Chest reconstruction	1	1	Pleurodese	2	
Debridment	1		Pneumonectomy	11	2
Decortication	13		Pneumothorax	5	
Echinococ syst	1		Rib fracture	1	
Empyema	8		RT biopsy	1	
Excision sinus sternum	1		Septic wound	4	
Haemothorax evacuation	1		Stabwound Thoracotomy	2	
ICD	5		Sternal wires	6	
Investigations	61		Sternotomy	2	
Lobectomy	4		Thoracostomy	5	
Lung biopsy/Thoracoscopy	11		Thoracotomy	13	1
Lung abses	1		Timectomy	4	
Lung investigations	19		Tracheal stenosis	1	
Lung mass	4				
Mediastinal mass	1		Total	236	4
Mediastinoskopy	5				
Mediastinotomy	2				
Metastatectomy	1				

5. FUTURE PROSPECTS

It is imperative that we improve our resource allocation to the department in both human resources, especially nursing and intensivists, in order to try and accommodate the needs of the population of Central South Africa. Prof Smit will actively pursue this goal in the years to come. We cannot ignore the fact that denying treatment in our specialty virtually implies certain death to the patient. We, as a department has to actively campaign for the rights of our patients to get proper and timely treatment.

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IV. HIGHLIGHTS

1. HIGHLIGHTS OF SPECIAL INTEREST

The development and expansion of our research division has certainly been the highlight of the year. We have now, in addition to Prof David Wheatley from Glasgow, appointed Prof W M L Neethling from Fremantle Hospital, Perth, Australia as special professor. He has extensive laboratory research experience and can greatly assist us with our large animal experimental surgical work.

Prof Bob Frater , from Einstein, New York , has been a great asset in the development of our valvular and tissue research and teaching programs.

2. ACTIVITIES / RESEARCH / ACTIONS

After a year in preparation, our study on the role of endothelial function in determining outcomes after different coronary artery disease interventions will kick off in May 2007. It involves the participation of several departments in the Central University of Technology and the University of the Free State. It has several international collaborators and also collaborators from other South African Universities. An interdepartmental study of this magnitude is a first for our department and will certainly be a great learning and capacity building exercise.

Our research into biological tissue and valvular substitutes and homografts continues.

The study on the development of Thoracic Surgery in Central South Africa, by Dr. A G Linegar, will hopefully provide guidance and a scientific basis for planning to our department and the department of Health.

Training of registrars and nurses remains a priority. Surgical exposure of registrars will be expanded and closely monitored in 2007.

Engaging the department of Health of the Free State and the University of the Free State on an ongoing bases as regards resource allocation to Healthcare in Central South Africa,(both capital and human resources), is one of our main goals for 2007. Health care indicators in our province show an alarming decline and as 87% plus of the population are depended on public health care; this must become the focus of our healthcare policy development activities.