



***DEPARTEMENT PEDIATRIE EN
KINDERGESONDHEID / DEPARTMENT OF
PAEDIATRICS AND CHILD HEALTH***

**JAARVERSLAG VIR TYGERBERG HOSPITAAL EN
STELLENBOSCH UNIVERSITEIT 2009/
ANNUAL REPORT FOR TYGERBERG HOSPITAL AND
STELLENBOSCH UNIVERSITY 2009**

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BRIEF SUMMARY INCLUDING MILESTONES

The Tygerberg Children's Hospital offers comprehensive secondary and tertiary services to children and serves the Eastern Metropolitan region of Cape Town. We admitted **13208 children** and offered outpatient services to **11983 children** in 2009. Together with the mother hospital, Tygerberg hospital, the services are actually offered to the whole family – **from baby to granny**.

Important paediatric tertiary services include neonatology with unique survival of extreme low birth weight babies; cardiology; infectious diseases with international experts in HIV and TB; pulmonology and neurology with internationally acclaimed expertise in tuberculosis; endocrinology; haematology, oncology, nephrology and **the very important scarce South African resource of a dedicated paediatric intensive care unit**. Paediatric surgery is offered to children from birth to adolescence. The secondary services include emergency paediatric medicine, short stay facilities, neonatology and ambulatory paediatrics. There is an active link and outreach programme to other large regional and district hospital to improve the overall care of children served by this hospital.

The main research focus is paediatric tuberculosis (TB) and HIV. The department has 5 NRF graded researchers (a=1; b=2; c=4) and publications for 2009 include 2 textbooks, 37 chapters in textbooks, 81 peer reviewed journal publications; 14 letters in journals and 13 peer reviewed abstracts (see part 2). Desmond Tutu Tuberculosis Centre (DTTC) is an internationally renowned research centre situated in the department, which link the paediatric department to community tuberculosis research and care. Successes include the TB-Free program, ZAMSTAR and TB Clinical Trials Consortium. Several members are international chairs of WHO committees. Kid-Cru is the clinical trials unit for paediatric HIV clinical trials, which collaborate closely with the adult clinics to provide holistic care to affected families. They were part of the very important CHER study that changed paediatric HIV management policy worldwide. Output includes participation in the new WHO ARV (antiretroviral therapy) guidelines.

We offer comprehensive education to under- and postgraduate students in the field of paediatrics and can train subspecialists in all the major sub disciplines of paediatrics. Several workshops were held to support continuous professional development of doctors and nurses in the region on the following topics: tuberculosis, gastro-enterology, neonatology, oncology, and research methodology.

Constraints experienced this year include the data management system and infrastructure at Tygerberg hospital, simultaneous maternity leave of several staff members and lack of funding for essential equipment. Fortunately Tygerberg management did assist by appointing locum doctors to assist with after hour services, although there are not adequate numbers of locum doctors available. Although 2009 had a doctors' strike, none of the paediatric staff actively participated and our patients did not suffer. The Tygerberg Trust assisted in fund raising and buying of essential equipment.

Our plans for 2010 include improvement of infrastructure with the help of the Tygerberg Trust, improvement in existing curriculum and to broaden the research agenda. We shall continue the process of level of care transformation with regards to service delivery. We aim to develop a PhD program pediatrics.

Professor Mariana Kruger

PART 1
DIENSLEWERING/SERVICE DELIVERY

Head of Department:
(Name and Surname)

Professor Mariana Kruger

Report compiled by:

Staff with the administrative help of Mrs A Fourie, N Meyer, M Bailey, P Permall and Miss S Engelbrecht

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PART I HUMAN RESOURCES AND OUTPUT

HUMAN RESOURCES

<u>Posts (full time)</u>	<u>Number</u>	<u>Filled</u>
Professor Chief Specialist	2	2
Chief Specialist	1	1
Principal specialist	6	6
Snr Specialist	21	20
Specialist Registrars	7	6
Registrar (Number only)	30	30
Medical Officer	28	26
<u>Posts (sessional – hours per week)</u>		
Specialists	6 (58 hrs/week)	4 (38 hrs/week)
Locum posts	1	1
<u>Number of beds (usable):</u>	249	249

Output

(Clinicom statistics did not correlate with departmental statistics kept by the clinical unit heads as indicated in red in brackets!)

BINNEPASIËNTE / in-patients

Neonatologie/Neonatology

Staff: Proff G Kirsten, J Smith, Drs P Henning, S Holgate, G Kali, A Madide, L van Wyk, ? registrars, ? medical officers

A9 Hoërsorg en Intensiewe-Sorg-Eenheid/ A9 High Care and Intensive Care Unit – L3

Beds n=8	2009	2008	2007
Opnames/Admissions	387 (420)	503	389
Gemiddelde hospitaal verblyf in dae/ Average Hospital Stay in days	21.1	17.1	16.4
Gemiddelde bedbesetting % Average bed occupancy%	82.40%	63.29%	75.08%
% Growth	-30%		
Keisersnitte/Caesarean sections:	2113	2391	1916
Sterftes/Mortality	162 (38.5%)	(156) 32.2%	153 (40%)

Saal G1: Neonatale-Eenheid / Neonatal Unit – L2/L3

Beds n=36	2009	2008	2007
Opnames/Admissions:	946 (578)	1018	919
Gemiddelde hospital verblyf in dae/ Average Hospital stay in days	11.5	11.3	8.8
Gemiddelde bedbesetting%/ Average bed occupancy%	75.9% (91.89%)	75.30%	94.81%

% Groei / % Growth	-7%		
Sterftes/Deaths	27 (4.68%)	29 (4.58%)	22 (2.39%)

Saal G2 Neonatale-Eenheid/Ward G2 Neonatal Unit – L2/L3

Beds n=38	2009	2008	2007
Opnames/Admissions:	2302 (2299)	1780	1815
Gemiddelde hospitaal verblyf in dae <i>Average Hospital Stay in days</i>	8.6	9.3	8.2
Gemiddelde bedbesetting/ <i>Average bed occupancy</i>	82.1%	84.60%	152.89%
% Groei/Growth %	29%		
Sterftes/Mortality	57 (2.48%)	52 (2.9%)	39 (2.17%)

Saal G8 Neonatale-Observasie-saal & Kangaroo-Moedersorg/Ward G8 Neonatal Observation ward & Cangaroo Mother Care Unit (30 beds)– L2

	2009	2008	2007
Opnames/Admissions:	835 (4)	533 (46)	44
Gemiddelde hospitaal verblyf in dae <i>Average Hospital Stay in days</i>	11.4	13.3	*
Gemiddelde bedbesetting%/ <i>Average bed occupancy%</i>	79.2%	27.07%	*
% Groei/Growth %	36%		*
Sterftes/Mortality	1 (0.12%)	2 (0.36%)	*

*Geen data beskikbaar / No data available – did not exist

Tertiary Paediatrics

A9 Pediatriese Intensiewe sorgeenheid/PICU – L3

Staff: Prof R Gie, Drs P Goussard, S Kling, L Heyns, 2 registrars, 1 medical officer

Beds n=8	2009	2008	2007
Opnames/Admissions:	625 (280)	510	634
Gemiddelde hospital verblyf in dae/ <i>Average Hospital stay in days</i>	6	8.1	2.5
Gemiddelde bedbesetting%/ <i>Average bed occupancy%</i>	120% (137.5%)	120% (112.2%)	120% (105.1%)
% Groei / % Growth	17-20%	17-20%	17-20%
Sterftes/Deaths	73 (27%)	62 (21%)	72 (27%)

saal G10 Kinderendokrinologie/ Ward G10 Paediatric Endocrinology – L3

Staff: Drs E Zollner, D Abrahams (sessions)

Beds n=5	2009	2008	2007
Opnames totaal/Admissions total	151 (132)	142 (75)	116
Diabeet pasiente/Diabetics patients	64		
Endokrien pasiente/Endocrine patients	87		
Gemiddelde hospitaal veblyf in dae <i>Average Hospital Stay in days</i>	12 (11.5)	10.7	11.1
Gemiddelde bedbesetting %/ <i>Average Bed occupancy %</i>	137.5%	*	*

Sterftes/Deaths	2 (1.5%)	2 (2.6%)	5 (4.3%)
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Infrastructure improvement

- Beta hydroxybutyrate test strips

Saal G9 Pediatriese Pulmonologie en Allergie/ Ward G9 Paediatric Pulmonology and Allergy (Pulmonology 10 beds, Paediatric Tracheostomy 9 beds) – L3

Staff: Prof R Gie, Drs P Goussard, S Kling, L Heyns, Dr A Vanker, Dr ?, 2 registrars

Pulmonology Beds n=10	2009	2008	2007
Tracheostomy Beds n=9			
Opnames Pulm/Admissions Pulm	534(389)	450	377
Gemiddelde hospitaal veblyf in dae <i>Average Hospital Stay in days</i>	7.0	8.2	7.4
Gemiddelde bedbesetting %/ <i>Average Bed occupancy %</i>	#76.67%	#73.35%	#74.68%
Sterftes/Deaths	4 (1.02%)	3 (0.91%)	2 (0.53%)
MIV-verwant (CHIP) <i>HIV related (CHIP)</i>	1	0	*
Exposed	1	0	*

#Include for all 3 subdisciplines in G9: Pulmonology; Cardiology & Neurology

Other output

1. Lung function tests (A5 Lung Unit Technologies) 822
2. Wet wraps 170
3. Asthma education 101
4. Out of ward referrals 156
5. Teater prosedures / Theatre procedures:
 - a. Bronchoscopies 267
 - b. Thoracic surgery 56

Saal G9 Kardiologie/ Ward G9 Cardiology Unit – L3

Staff: Prof J Lawrenson, N Seller, L Andrag, G Commitis, R de Dekker (RXH)

Beds n=10	2009	2008	2007
Opnames/Admissions	155 (54)	331 (83)	141
Gemiddelde hospitaal veblyf in dae <i>Average Hospital Stay in days</i>	9.1		
Gemiddelde bedbesetting %/ <i>Average Bed occupancy %</i>	*	*	*
Inpatient Consultation/Echocardiography	570		
# RXH Theatre procedures operations	269		
#RXH Theatre Catherizations	258		

*Combined with paediatric pulmonology – Need to be addressed in 2010 by Clinicom

#Done at RXH as common platform of service delivery

Saal G9/ Ward G9 Neurology – L3

Staff: Proff J Schoeman, Drs R van Toorn, P Springer, Dr R Solomons (G10)

Beds n=10	2009	2008	2007
Opnames/Admissions	245 (78)	281 (189)	213
Gemiddelde hospitaal veblyf in dae	8.3	7.9	7.9

<i>Average Hospital Stay in days</i>			
Gemiddelde bedbesetting %/ <i>Average Bed occupancy %</i>	*	*	*
% Groei / % Growth			
Sterftes/ <i>Deaths</i>	1 (1.28%)	5 (2.64%)	4 (1.87%)

*Combined with paediatric pulmonology – Need to be addressed in 2010 by Clinicom

Saal G7/ Ward G7 Gastroenterology Unit – L3

Staff: Drs E Nel, L Cooke (G Ground)

Beds n=9	2009	2008	2007
Opnames/ <i>Admissions</i>	368 (256)	302 (224)	308 (256)
Gemiddelde hospitaal veblyf in dae <i>Average Hospital Stay in days</i>	11.2	13.8	12.4
Gemiddelde bedbesetting%/ <i>Average Bed occupancy %</i>	91.5%	*	*
% Groei / % Growth	21.8%		
Sterftes/ <i>Deaths</i>	18 (5%)	14 (6.25%)	17(6.7%)
MIV-verwant (CHIP) <i>HIV related (CHIP)y</i>	6	6	1
Exposed	2	1	0
Infected	4	4	1
Not staged, but indicated	1	1	0

Theatre procedures

- Oesophageal ligation 2
- Gastroscopy 24
- Colonoscopy 1
- Liver biopsy 4
- Sigmoidscopy 2
- Volwasse kolonoscopy 212
- Adult sigmoidoscopy 8

Saal G7/ Ward G7 Infectious Diseases Unit – L3

Staff: Prof F M Cotton, B Marais (G Ground), H Rabie (HIV Clinic)

Beds n=14	2009	2008	2007
Opnames/ <i>Admissions</i>	219	170	308 (150)
Gemiddelde hospitaal veblyf in dae <i>Average Hospital Stay in days</i>	17.0	17.4	15.7
Gemiddelde bedbesetting %/ <i>Average Bed occupancy %</i>	91.5%	85.74%	89.74%
Sterftes/ <i>Deaths</i>	8 (3.7%)	17 (8.13)	12 (8%)
MIV-verwant (CHIP) <i>HIV related (CHIP)</i>	1	0	2
Exposed	7	16	6
Infected	4	1	0

Saal G3/ Ward G3 Oncology & Haematology/Oncology & Haematology – L3

Staff: Prof M Kruger, Drs C Stefan, A Dippenaar, R Uys

Beds n=9	2009	2008	2007
Nuwe pasiënte/ <i>New patients</i>	25 Hematology		

	46 Oncology		
Opnames/ <i>Admissions</i>	464 (587)	668	632
Gemiddelde hospitaal veblyf in dae <i>Average Hospital Stay in days</i>	5.2	6.3	4.1
Gemiddelde bedbesetting %/ <i>Average Bed occupancy %</i>	90.5%(56.09%)	66.14%	41.10%
Mortaliteit CHIP/ <i>Mortality CHIP</i>	2 (.34%)	1 (0.14)	(1.81%)
Sterftes/ <i>Deaths</i>	15 (3.23%)	12 (1.80%)	2 (0.31%)
Day patients	1051		

SECONDARY PAEDIATRICS – L2

Kortverblyfsaal: <24 Uur Opname/Gground /Short Stay: < 24 hour admissions)

Staff: Prof S Schaaf, L Cooke, H Finlayson

	2009	2008	2007
Totale opnames/ <i>Total admissions</i>	4834 (3885)	3205	2972
% toename van algemene opnames <i>% of increased general admissions</i>	8.5%		
Gemiddelde pasiënte/dag <i>Average patient/day</i>	13 (10.7)	8.8	4.8
Gemiddelde hospitaalverblyf/dae / <i>Average hospital stay/days</i>	1.7	2.0	1.9
% bedbesetting gemiddeld <i>% bed occupancy average</i>	73%		
Sterftes / <i>Deaths</i>	20 (0.4%)	10 (0.31)	9 (0.30)
MIV verwante mortaliteit <i>HIV related mortality</i>	11	5	1
Exposed	4	1	1
Infected	2	2	0
Not staged, but indicated	5	2	0

Constraints

- Major shortage of medical officers experienced during 2009
- Diarrhoeal disease from January till April 2009
- No facilities for general paediatric outpatients, which have to be seen in emergency paediatrics facility

G10 Algemene Pediatrie/Ward G10 General Paediatrics – L2

Staff: Dr R Solomon

Beds n=20	2009	2008	2007
Opnames/ <i>Admissions</i>	306	232	438
Gemiddelde bedbesetting %/ <i>Average Bed occupancy %</i>	137.5%(77.53%)	59.55%	70.50%
Gemiddelde hospitaal verblyf in dae <i>Average hospital stay in days</i>	9.1	9.1	9.3
Sterftes/ <i>Deaths</i>	11 (3.6%)	11 (4.74%)	17 (3.9%)
MIV-verwant (CHIP) <i>HIV related (CHIP)</i>	2	1	2
Exposed	0	1	0

Infected	1	0	2
Not staged, but indicated	1	0	0

Mortaliteit/Mortality:

5 hoof oorsake van kindersterftes 2009/5 main causes of paediatric deaths 2009

Diagnose/Diagnosis	Totale sterftes/Total deaths
<i>Pneumonia</i>	26
<i>Diarrhoea & Hypovolaemic shock</i>	20
<i>Septicaemia, possible serious infection</i>	10
<i>TB Meningitis</i>	5
<i>Other possible serious infections</i>	4

Mortaliteit (CHIP) vir alle Pediatriese Sale/Mortality (CHIP) for all Paediatric Wards*

<i>CHIP mortaliteit/CHIP mortality</i>	2009	2008	2007
<i>Getal sterftes/ Number mortalities</i>	94	71	47
<i>> 5jaar sterftes/ >5 year mortalities</i>	17	9	2
<i>1 - 5 jaar sterftes/1 - 5 year mortalities</i>	22	29	13
<i>< 1jaar sterftes/<1 year mortalities</i>	55	33	32

(*Neonatale sterftes uitgesluit/*Excluding neonatal deaths)

BUIEPASIËNTEKOMPLEKS/ OUTPATIENT COMPLEX

Spesialisklinieke/Specialist Clinics

	2009	2008	2007
Klinieke/Clinic	Aantal/ Total	Aantal Total	Aantal Total
Hematologie/Haematology	155	/	/
Lewer/Liver	/	5	/
Immunologie/Immunology	166	149	161
Onkologie/Oncology	410	507	561
Respiratories/Respiratory	1258	1154 (1195)	1155
Gastroenterologie/ Gastroenterology	664 (605)	649	619
Hoë Risiko Babas/High Risk Babies	1390	1557	1502
Neurologie/Neurology	2271	2249	2317
Allergie/Allergy	762	736	649
Prematuuropvolg/Prematur e follow up	288	332	280
Nefrologie/Nephrology	1120	1145	1289
Kardiologie/Cardiology	1069	1180	1228
Bronchopulmonale displasie/ Bronchopulmonoray Dysplasia	30	50	47
Diabetes/Diabetic	479	401	387
Endokrinologie/Endocrinol ogy	447	771(370)	374
Rumatologie/Rheumatology	184	158	208
Infeksie siektes/Infectious diseases	848	655	653
Genetika/Genetics	265	267	257
Aptek voorskrifte/Chemist prescriptions	236	260	139
Totale van al die klinieke/ Total of al the clinics	11983	11865	11826

GEMEENSKAPSPROJEKTE/COMMUNITY OUTREACH PROGRAMMES

Regional

- Eerste River Hospital: CME lectures; morbidity & mortality meetings – Drs Cooke, Finlayson; Holgate, Rabie
- Eastern and Tygerberg subdistricts together with PGWC and City of Cape Town: Diarrhoeal campaign with education and skills sessions – Drs Cooke; Finlayson
- Paediatric Technical Work Group Meetings – Drs Cooke, Finlayson
- Brooklyn Chest Hospital – Proff Schaaf; Donald; Dr Rabie

- MDR and complicated TB patients – 132 children admitted in 2009
 - Paediatric ARV clinics
- Khayelitsha: Weekly MDR-TB Clinic – average 20 patients/clinic – Prof Schaaf
- Bronchoscopy teaching programme for staff of Red Cross Children’s Hospital – Prof Gie, Dr Goussard
- Combined pulmonology sub-speciality academic meetings with Red Cross Children’s Hospital – Prof Gie, Dr Goussard
- Paarl hospital outreach: pulmonology; neurology, neonatology, oncology – several staff members
- Worcester hospital outreach – several staff members
- Helderberg hospital outreach – several staff members
- Tygerberg Children’s Hospital – School governing body: Dr L Heyns
- Sivuyile Special care at Stikland, Athlone School for the Blind and Agape Special care centre in Grabouw – Dr Springer
- Diabetes education to community health care personnel (Novo Nordisk donated the salary for the newly appointed diabetic educator) – Dr Zollner
- Telemedicine project in collaboration with Rotary Club – Dr Nel
- Action Rescue Kids – Kid-Cru staff
- Kid-Cru Community Advisory Boards (CAB) - Kid-Cru staff
 - Community education and awareness programs
- Tygerberg Hospital School: Dr L Heyns – member of governing body
- DTTC Community Advisory Boards (CAB) – Staff of DTTC
- CME lectures to generalists and specialists – Dr S Kling, Dr C Stefan, Dr A Dippenaar, Dr R Uys, Prof M Kruger
- APLS – Dr L Heyns
- Telemedicine project with Rotary – Dr E Nel

Provincial and National

- SA Childhood Asthma Working Group – Dr S Kling: Chair; Prof Gie: member; Dr P Goussard: member: Revised the treatment guidelines
- Allergy Society (ALLSA) – Dr S Kling: member
- College of Paediatricians – Dr S Kling: secretary; Dr L Heyns: member and diplomate representative on Senate
- College of Medicine of South Africa - Dr L Heyns: diplomate representative on Senate, as well as member of Finance and General Purposes
- South African Thoracic Society (SATS) – Dr P Goussard : members
- Clinical Ethics Committee of TBH – Dr S Kling: member
- Two pulmonology congresses – Prof Gie, Dr Goussard
- Monthly TB training meetings with Provincial Health Department: Prof R Gie
- PANDA
- CHOC – Executive Board member: Prof Kruger
- S2S – Paediatric HIV Training programme nationally: Dr L Smith – Director; several staff members involving pulmonology, infectious diseases, gastro-enterology
- Vermont- Oxford Network Database & Private Sector Medical Care RSA: Medi-Clinic Group - Quality assurance at Private NICUs: Prof Kirsten
- Annual Family Clinic Picnic - Ravensmead

International

- WHO Childhood TB Subgroup of the DOTS Expansion Working Group of Global STOP TB Strategy: Prof R Gie – chair
- WHO Technical Review Committee of the Global Drug Facility: Prof R Gie – chair
- University College London and University of Cape Town: Computer Aided Detection of Paediatric TB on Digital X-rays – Proff Gie; Andronikou; Todd-Pokropek; Drs Goussard; Douglas; Taylor; Mr Irving
- International TB course – Prof R Gie
- Prof J Smith - Editorial Board of the international journal “Neonatology” (Formerly Biology of the Neonate)
- Prof J Smith - Executive Committee member (Vice-Chairman): IPOKRATES International (Non-profit organization for post graduate teaching)
- Prof N Beyers – Editor-in-chief International Journal of Tuberculosis and Lung Diseases
- TB Meningitis Home Treatment Program – Dutch Television: Prof Schoeman, Dr van Toorn
- Kenya Paediatric Association: Treatment of malnutrition – Dr Nel
- Africa Regional CAB – Kid-Cru CAB

PART 2

EDUCATION

Undergraduate students – 97% pass rate

Postgraduate students

- 1 PhD in Epidemiology – London School of Hygiene and Tropical Medicine: Prof AC Hesselning – Title: Direct and non-specific effects of BCG in HIV-exposed and infected South African infants.
- M Med – 7 with 2 distinctions
 - Dr JB van Dyk – Title: The outcome of very low birth weight babies with severe necrotizing enterocolitis initially treated with intraperitoneal drains in Tygerberg Hospital.
 - Dr A Vanker – Title: The Tracheostomy Home Programme at Tygerberg Children’s Hospital – Experience from a resource-limited setting: *Received the price for best poster presentation at Academic Day of the Faculty of Health Sciences.*
 - Dr M du Toit – Title: Blood and bloody fluid contamination detected by examination of protective eyewear worn during intubation and suctioning of endotracheal tubes in children.
 - Dr CW Retief-Zarrabi – Title: The change in childhood cancer occurrence in relation to the change in HIV occurrence.
 - Dr A Slogrove – Title: Severe infections in HIV-exposed uninfected infants: Clinical evidence of immunodeficiency.
 - Dr TC Gray – Title: Paediatric and adolescent imported Malaria in Cape Town. *[Cum laude] Received the price for best registrar presentation at Academic Day of the Faculty of Health Science. Received the CMSA medal for best performance in FCP exam.*
 - Dr E Walters – Title: Clinical presentation and outcome of Tuberculosis in Human Immunodeficiency Virus infected children on anti-retroviral therapy. *[Cum laude]*
- FCP (CMSA) subspecialities:
 - 1 Neonatology – Dr G Kali
 - 1 Infectious Diseases – Prof BJ Marais
 - 1 Cardiology – Dr N Seller
 - 1 Neurology – Dr R Solomons
- FCPaed (CMSA) Part 2 – 7 with 1 distinction: 1 College Medal
- FCPaed (CMSA) Part 1 – 3
- DCH (CMSA) – 1
- College of Medicine Examiners:
 - FCP Part 2: Prof M Kruger, Dr S Kling
 - FCP Part 1: Dr P Goussard
 - Certificates in subspecialities: Proff RP Gie, GF Kirsten
 - DCH: Prof S Schaaf; Dr L Cooke
 - Diploma in Allergy: Dr S Kling - convenor
- Diploma in Infectious Diseases – London School of Hygiene and Tropical Medicine: Dr H Rabie
- Sabbatical leave
 - Denver: Dr H Rabie
 - Royal London Hospital: Prof Schoeman
- Training awards

- Nycomed Pulmonology: Dr A Vanker
- Discovery Neonatology: Dr L van Wyk

PART 3
RESEARCH

ARTIKELS/Publications

1. Bourne DE, Thompson M, Brody LL, **Cotton M**, Draper B, Laugscher R, Abdullah MF, Myers JE. Emergence of a peak in early infant mortality due to HIV/AIDS in South Africa. *AIDS* 2009; 101-106.
2. Pienaar M, Andronikou S, **Van Toorn R**. MRI to demonstrate diagnostic features and complications of TBM not seen with CT. *Childs Nerous System* 2009; 25(8): 941-947
3. Van Well GTJ, Paes BF, Terwee CB, **Springer P**, Roords JJ, **Donald PR**, Van Furth M, **Schoeman JF**. Twenty years of pediatric tuberculous meningitis: a retrospective cohort study in the Western Cape of South Africa. *Pediatrics* 2009; 123(1): e1-e8
4. Andronikou S, **Van Toorn R**. The DWI "reversal sign" of white matter hypoxic ischaemic injury in older children: an unusual MRI pattern for age. *Pediatric Radiology* 2009; 39(3): 293-298
5. Bardien S, Human H, Harris T, Hefke G, Veikondis R, **Schaaf HS**, Van der Merwe L, Greinwald JH, Fagan J, de Jong G. A rapid method for detection of five known mutations associated with aminoglycoside -induced deafness. *BMC Medical Genetics* 2009; 10(2): 1471-2350
6. Bourne DE, Thompson M, Brody LL, **Cotton M**, Draper B, Laubscher R, fareeds MF, Myers JE. Emergence of a peak in early infant mortality due to HIV/AIDS in South Africa. *Aids* 2009; 23: 101-106.
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PART 4

INFRASTRUCTURE DEVELOPMENT – UPGRADING, NEW EQUIPMENT, ETC IN TBH

Pulmonology

New bronchoscopes for age groups neonates to adolescents, which will assist adult cardiothoracic patients.

Neurology

Probe and portable ultrasound device (in conjunction with the units of Cardiology and Neonatology) for trans-cranial Doppler (TCD) measurements in children with TB meningitis (Work towards Dr van Toorn's PhD thesis)

Endocrinology

Beta hydroxybutyrate test strips to diagnose DKA were introduced as a pilot project.

Kid-Cru

Kid-Cru – Better computer facilities; air conditioning

GGround

Bair Hugger Warming System; 2 resuscitation trolleys, resuscitation cart.

Neonatology

Neonatal therapeutic hypothermia: We acquired 2 new cooling systems, and a cerebral function monitor for the NICU with the assistance of funding from private donors. This has offered some hope of limiting ongoing cerebral injury infants with HIE. At the end of December, we had treated 15 infants with this novel therapy. We plan to follow them up to at least 1 year of age in order to assess the beneficial effect of the treatment on their outcomes.

Haematology & Oncology

Bed linen, duvets, toys, television and 2 ward computers

Tygerberg Children's Hospital Trust' Contribution to Infrastructure

Company	Equipment/Ward	Purchase Price
Respiratory Care Africa (Pty) Ltd	5 Cosycots and 5 Incubators for G8 Neonatology	R435 143.37
Respiratory Care Africa (Pty) Ltd	7 Incubators for G8 Neonatology	R252 677.12
Healthcare Technologies	1 Bilicheck Analyzer for G8 Neonatology	R31 000.00
Smiths Medical (SA) Pty Ltd	6 Apnoea Monitors for G8	R34 200.00
Augustine Medical SA	1 Bair Hugger Warming System for G Ground	R13 110.00
SSEM Mthembu Medical (Pty) Ltd	1 Tecotherm Total Body Cooling System and Cerebral Function Monitor for NICU	R619 020.00
Tecmed	1 Bronchoscope for PICU	R399 965.81
Respiratory Care Africa	12 Incubator Bumpers for G8 Neonatology	R26 676.00
B Braun Medical	6 Perfusor Compact "s" pumps for G8 Neonatology	R35 340.00
Smiths Medical	4 Apnoea Monitors for G8 Neonatology	R22 800.00
ARJO Huntleigh South Africa	2 Lifeguard Trolleys with mattress and electronic cover for G Ground	R74 426.04
Dinaledi Medical (Pty) Ltd	8 Nellcor pulse oximeter oximax for G8 Neonatology	R 68 947.20
TOTAL		R2 030 735.35

PART 5
DESMOND TUTU TB CENTRE (DTTC)

Human RESOURCES

<u>Posts (full time)</u>	<u>Number</u>
Professor	2
Extra ordinary Professors	2
Data managers & clerks	16
Project managers, study coordinators, counsellors, research assistants	180
Medical Officers	9
Specialist	1
Total	210

INFRASTRUCTURE DEVELOPMENT – UPGRADINGM, NEW EQUIPMENT, ETC

1. The 8 field offices of the ZAMSTAR study (in Site C Khayelitsha, Kuyasa, Delft-South, Wallacedene, Mzamomhle, Nyanga, Kayamandi and Mbekweni) have been maintained and expanded.
2. The 2 field offices in Ravensmead and Uitsig were upgraded and repaired
3. The paediatric rooms in the field offices of Ravensmead, Uitsig and Site C are maintained as “Child-friendly” for the childhood TB studies
4. The e-nose study expanded to Adriaanse and Elsies River and site offices refurbished.
5. There are now 9 community VCT Centes which operate in collaboration with various NGOs and these NGOs have been equipped with tents and/or caravans and other necessary equipment to do VCT outreach in communities
6. Work on the PMTCT programme continue in 2 Maternity Obstetric Units (MOUs) and 5 well-baby clinics in Khayelitsha
7. The fleet of vehicles (15 vehicles and 3 trailers) have been maintained and new parking area established.
8. Caravans are stored at the field sites.
9. 4 additional vehicles and 2 additional caravans were ordered (will be delivered in 2010)
10. The offices in the Faculty (lower ground floor, clinical building) have been upgraded
11. Carpets were replaced after the flood
12. A new P3 level laboratory was established and refurbished on 5th floor of the Faculty to enable Prof van Helden and his department to do all the cultures (80 000 cultures from 40 000 people) for the ZAMSTAR prevalence survey.
13. 55 new computers were purchased
14. 26 new Personal Digital Asistants (PDAs) were purchased and programmed for the ZAMSTAR prevalence survey
15. A new website was launched www.sun.ac.za/tb

COMMUNITY OUTREACH PROGRAMMES / COMMUNITY SERVICE IN 2009

1. The **TB-free Kids Project** has been maintained as a “Flagship project” of the University. Many activities have been done in the community. Of note were functions on Women’s Day (with Mr Tony Ehrenreich as guest speaker) and a visit to Uitsig by the King and Queen of Norway.
2. The **ZAMSTAR** (Zambia South Africa TB and AIDS Reduction) study is done in 8 communities in the Western Cape and in the past year the following has been achieved:
 - a. The final year of interventions has been completed and the focus of November and December has been on the preparation for the Prevalence Survey 2010 (the primary outcome measure of ZAMSTAR). During the Prevalence Survey, 40 000 people in South Africa and 80 000 people in Zambia will be enrolled to gain knowledge on socio-economic status, nutrition, alcohol and tobacco use, and the prevalence of TB, HIV, diabetes mellitus.
 - b. More than 300 drama performances were done and about 15% of smear positive samples are now found via the Intensified Case Finding intervention
 - c. In the household intervention, a total of 3134 index cases and their household contacts were enrolled. From this intervention 2749 adults were tested for HIV, and 178 were diagnosed with TB.
 - d. A cohort of 4693 adults with and without TB has been established and these people will be followed up until end of 2010.
 - e. Results of the ZAMSTAR study have been disseminated to various Health Departments as well as to the communities
 - f. A special dissemination meeting was held in each of the 8 ZAMSTAR communities, where the results were presented to the people of the communities.
 - g. Close-down (exit) meetings were held with all 8 clinics and the districts to prepare the clinics for 2011 when the ZAMSTAR teams move out
 - h. Numerous discussions were held with various funding agencies and proposals written to ensure continued funding after the completion of ZAMSTAR.
3. The **paediatric studies** at DTTC focuses on the following areas of research:
 - a. Diagnosis of Childhood TB including in HIV co-infected children;
 - b. TB prevention in children;
 - c. BCG induced immunity in HIV-exposed and unexposed infants,
 - d. Health systems strengthening and community interventions.
 - e. The team works in Tygerberg Children’s Hospital as well as in 4 community sites namely Ravensmead, Uitsig, Site C (Khayelitsha) and Site B (Khayelitsha)
 - f. Milestones on existing research studies
 - i. 278 children were recruited in a community-based TB household contact tracing diagnostic study (“NUFU” – funded by Norwegian Cooperation for Higher Education and by the National Institutes of Health; NIH)
 - ii. 125 HIV-infected and uninfected children were enrolled on a hospital-based diagnostic study assessing the diagnostic utility of Interferon-gamma release assays (funded by the Thrasher research Foundation)
 - iii. 120 mothers and infants were enrolled on a maternal infant immunology study assessing the effect of TB and HIV infection on immune responses to BCG, TB and other routine vaccines
 - iv. 145 HIV-infected and exposed children were enrolled from KIDCRU onto a TB diagnostic study utilizing novel TB immune diagnostic testing)

- v. A reproducibility study of 2 TB diagnostic interferon-gamma release assays amongst health care workers was completed
- g. New projects funded
 - i. Immune polarization in childhood tuberculosis: the role of helminth co-infection in collaboration with the Max Plank Institute and the Bernard Nocht Institute Hamburg, Germany (PI: Anneke Hesselning and Gerhard Walzl)
 - ii. CDC funded TB Clinical Trials Consortium (TBTC): Stellenbosch University was awarded a competitive 10- year research grant to collaborate and conduct clinical trials as part of this international TB drug trials consortium. The PIs for this “SUN-TB” awarded are: Anneke Hesselning, Andreas Diacon and Mark Cotton
- 4. The **TB-HIV Integration project**, currently in year 3 of its 5-year lifespan has the dual goals of reducing the TB burden by increasing TB case finding and ensuring appropriate TB care and of reducing HIV transmission in communities and minimizing the impact of HIV on individuals. There are 3 objectives:
 - a. The project’s first objective, to increase access to HIV counseling and testing services, has been achieved through the establishment of 9 Community VCT Centres in partnership with NGOs.
 - i. These centers offer outreach services into communities to facilitate access to HIV testing. All centers offer TB diagnostic services and a range of other services such as family planning, pregnancy diagnosis and STI management. Clients requiring TB treatment, HIV care and other services are referred to government services.
 - ii. In 2009, VCT uptake increased by more than 150% from the previous year, with 24,934 clients attending services of which 97% were tested and 1,966 were HIV-infected. 82 cases of TB were diagnosed.
 - b. The project’s second objective is to strengthen health systems and improve access, quality and collaboration between HIV and TB services.
 - i. A wide range of interventions to improve TB case finding, TB cure rates and infection control and to reduce susceptibility to TB and HIV have been implemented at primary care clinics, with a particular focus on the 22 high burden clinics in the City.
 - ii. Particular successes include further development of the TB/HIV/STI Integrated Audit Tool, particularly of the ART and PMTCT components and support for the implementation of this tool including in rural regions in the Western Cape.
 - iii. Interventions to improve the management of TB include the use of a TB flipchart for client education, revision of community DOT management systems, improved use of the TB register as a management tool and development of staff capacity to understand and use TB data.
 - iv. Special emphasis has been placed on capacity development with a total of 620 health workers trained, including 118 GPs and medical officers who were trained on TB diagnosis in adults and children and TB-HIV co-infection.
 - v. DTTC has partnered with Dept of Health to establish a data management system for managing the results from the centralised laboratories of the NHLS in an attempt to increase the number of TB cases diagnosed.

5. The study on **TB in Health Care Workers** has expanded and together with Dept of Health, Dr Mareli Claassens surveyed more than 130 clinics in 5 provinces (Northwest, KZN, Eastern Cape, Limpopo, Mpumalanga) to validate the Risk Assessment Tool (RAT), to evaluate infection control measures and to establish the prevalence and incidence of TB in Health care Workers. The results were presented to Department of Health in November 2009. The final report will be available in February 2010. During 2010 DTTC and Dept of Health will together decide on the way forward and further interventions.
6. **TB Trials Consortium**
7. The study on **Biomarkers of Protective Immunity against TB in the context of HIV/AIDS in Africa** is continuing in collaboration with Prof Gerhard Walzl. This study recruits participants from Ravensmead and Uitsig as well as from Tygerberg Hospital. A cohort of HIV negative participants (171 TB cases and their 966 household contacts) as well as HIV positive participants (43 TB cases and 185 non-TB participants) has been established and is being followed up for 24 months.
 - vi. To address infection control in the clinics, the specifications for single and double sputum booths were drawn up – there was some delay in the tender process and the sputum booths are to be distributed to all 101 TB clinics in the City during 2010.

1. **Partnerships**

National

1. DTTC is closely aligned with the National, Provincial and Local health departments and assist on all levels in the development of guidelines, manuals and training material
2. All activities are planned in close collaboration with the various levels of the department of health
3. All activities are planned and implemented with the support of the local Community Advisory Boards

International

1. DTTC remains a Collaborating Centre of the International Union Against TB and Lung Disease
2. During 2009 DTTC became a Regional Collaborating Partner (for the Africa region) for TREAT TB. The contract will be signed early in 2010 and funds transferred.
 - a. A meeting with national Dept of Health and USAID was held in November to gain support from the Dept of Health for this initiative

Achievements with regards to research activities and research outputs:

Number of publications from the department / division (See list above with all departmental publications)

Text books and contributions to text books.

27 peer review articles published

10 other publications (Chapters, editorials, letters)

Teaching and Training (under-, postgraduate and elective students).

1. On request of and in partnership with the health Directorate of City of Cape Town, DTTC presents a TB Clinical Forum once a month which is attended by clinicians working in the City clinics
2. A 5 day workshop for academic colleagues from DTTC and colleagues from the Department of Health was held in November 2009.
3. Prof Donald Enarson visited DTTC twice for a 2 week period each time to teach and mentor the staff of DTTC
4. Supervision was provided to at least 9 post-graduate students (3 PhD)
5. Prof Beyers is involved in teaching of undergraduate students (MBChB11-V1)
6. Prof Hesseling and Prof Beyers teaches in the M Clin Epidemiology course
7. Prof Beyers teaches in various Faculty course including the NIH Ethics course and the Masters Classes for researchers.
8. In August the ZAMSTAR teams from South Africa and Zambia convened in Limpopo for a huge training session of all researchers to be involved in the prevalence survey – 350 people attended.

Special achievements and other highlights not covered by this template.

1. Dr Anneke Hesseling was promoted to full Professor
2. Prof Hesseling is the Chair person of the Childhood TB Diagnostic Working Group (Stop TB Partnership)
3. Prof Robert Gie is the Chair of the Childhood TB Subgroup of the DOTS Expansion Working Group (Stop TB Partnership)
4. Prof Robert Gie is the Chair of the Technical Review Committee of the Global Drug Facility
5. Prof Robert Gie is a member of the Technical Review Committee of the Treatment Guidelines of the WHO
6. Prof Nulda Beyers is the Editor-in-Chief of the International Journal of Tuberculosis and Lung Disease
7. Ms Wena Moelich has been seconded to National Department of Health to launch and implement the “Kick TB 2010” national campaign. This campaign was launched internationally at the World Conference on Lung Health in Decemebr 2009 in Cancun, Mexico.
8. A documentary on the ZAMSTAR activities was made during 2009
9. Ms Wena Moelich and ms Sterna Brand represented the DTTC at the Graham and Rhona Beck Foundation at the occasion of their Skills Training Centre launch
10. A number of DTTC staff gave talks on Radio Tygerberg – especially in the run up to for World Aids Day (1 December) and World TB Day (24 March)
11. Royal visit: The Norwegian King and Queen visited the Uitsig community in November to gain insight into the Norwegian funded project and larger DTTC activities in this community
12. The Desmond Tutu TB Centre works closely with the Tygerberg Children’s Hospital, in that the Centre resorts under the Department of Paediatrics at the Faculty of Health Sciences, Stellenbosch University. It has become our proud tradition to host an Interfaith Thanksgiving Service which is led by the Emeritus Archbishop Desmond Tutu, patron of the Tygerberg Children’s Hospital. In 2009 this event was once again a major highlight and a huge blessing to all present.
13. Ms Wena Moelich organized a very successful concert for Tygerberg Children’s Hospital (Children for Children) in the Cape Town City Hall where the Tygerberg

Children's Choir and the SA Youth Choir and various other artists performed in support of Tygerberg Children's Hospital

14. A successful community outreach was held in Uitsig (reported in a number of newspapers) – during this outreach, the results of the Biomarker study was communicated to the community members and the Cape Town City Health Department.
15. Funding for the DTTC comes from a variety of funding bodies including the Bill and Melinda Gates Foundation, NIH, USAID, CDC, UBS Optimus Foundation, the Norwegian Research Council, and amounts to about R50 000 000 per year
16. Dr. Susan van Wyk and Karen Du Preez were awarded International Union against TB and Lung Diseases (IUATLD) Operational TB Research Fellowships (SCHIOR)
17. Dr. Catherine Wiseman was elected and participated in the Johns Hopkins Mph Summer School program in Epidemiology
18. Dr. Susan van Wyk and Karen Du Preez were awarded South African TB/HIV (SATBAT) Fogarty proposal awards.
19. Felicity Stevens (study coordinator) and Claudia Francis (study nurse) were chosen to participate in an international US based training course for study coordinator training
20. Anneke Hesselning was elected the chair of the WHO Stop TB Partnership's TB Diagnostic Group Child Subgroup: <http://www0.sun.ac.za/NDWGChildTB/>
21. Anneke Hesselning was elected the chair of the new CDC funded TB Clinical Trials Group (TBCG); Paediatric Interest Group (TB PIG), along with Mark Cotton as co-chair.
22. Anneke Hesselning was elected as Secretary: International Union against Tuberculosis and Lung Diseases Lung Health Section.