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DEPARTMENT OF PAEDIATRICS AND CHILD HEALTH

Annual Report for Tygerberg Hospital and Stellenbosch University 2016

HEAD OF DEPARTMENT REPORT COMPILED BY

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Table of Contents

Head of Department	1
Professor Mariana Kruger	1
Report compiled by	
Editor: Professor Mariana Kruger	
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Tel: (021) 938-9220/938-4538	
EXECUTIVE SUMMARY – 2016	
Part 1	5
RESOURCES AND OUTPUT	5
Human Resources	5
Output	5
Subspecialist Paediatrics	5
Total patient admissions 2016 (Clinicom data)	
Bed Occupancy Rate 2016(Clinicom data)	
Neonatology	
Ward G1: Neonatal Unit – Babies born outside TBH	
A9 Paediatric Intensive Care Unit	6
A9 Paediatric High Care Unit	7
A9 Tracheostomy Unit	
Ward G9 Paediatric Pulmonology and Allergy	
Ward G10 Gastroenterology	
Ward G10 Infectious Diseases Unit	
Ward G3 Oncology & Haematology	
Ward G3 Rheumatology & Immunology	
Ward G3 Nephrology	
Ward G3 & G10 Cardiology	
OUTPATIENT COMPLEX Subspecialist Clinics	
general specialist services	
Total Patient Admissions 2016 (Clinicom data) Bed Occupancy Rate 2016 (Clinicom data)	
Neonatology	
Ward G2 Neonatal Unit – Babies born in TBH	
Ward J3 Neonatal Unit – Babies born in TBH	
Ward G8 Neonate & Kangaroo-mother Care – Step-down Facility	
Short-stay G Ground: <48-hour Admissions	
Ward G7 General Paediatrics	
General Paediatrics: Emergency & Clinics	
2016 Morbidity & Mortality	
Mortality per Ward Audited deaths only (from available CHIP data)	
Mortality per Ward (Clinicom data)	
Infrastructure Development	
Part 2	
Community Outreach Programmes/Community Service and Interac Partnerships	

Expert Members	19
Outreach	
Media Exposure	21
Part 3	23
Teaching & Training	23
Education-related Activities	23
Postgraduate Students	23
Successful PhD Candidates	
Enrolled PhD students	23
Successful MMed(Paed) Candidates	
Colleges of Medicine of South Africa (CMSA)	
Certificate in Neonatology	
Certificate in Medical Oncology	
Certificate in Infectious Diseases (Paeds)	
FC Paed (SA) Part II	
FC Paed (SA) Part I	
Undergraduate Students	26
Education-related Activities	26
Part 4	27
Achievements and Highlights	
Publications	
Courses & Conferences Attended and/or Participated	39
CENTRES	
THE FAMILY CLINICAL RESEARCH UNIT (FAMCRU)	49
Director: Prof MF Cotton	49
SOUTH2SOUTH PROGRAMME FOR COMPREHENSIVE FAMILY HIV CARE & TREA	
Director: Dr IO Oluwatimilehin	
DESMOND TUTU TB CENTRE (DTTC)	
Director: Prof AC Hesseling	65

EXECUTIVE SUMMARY - 2016

The inpatient admissions were stable at 15 564 in 2016 (9 906 children admitted to general paediatrics and 5 658 for highly specialized paediatric care) in the Department of Paediatrics and Child Health, Stellenbosch University in Tygerberg Hospital, serving the East Metropolitan region of the greater Cape Town and the North-Eastern districts of the Western Cape. The average bed occupancy rate (BOR) was 88% for general paediatrics and 69% for highly specialized paediatric services.

Two PhD degrees were awarded in 2016 to Dr A Bekker and Ms M Zunza, while 13 MMed(Paed) students completed their Master's degree in paediatrics and 3 paediatricians qualified as subspecialists (medical oncology, neonatology and infectious diseases). The undergraduate pass rate increased from 98% in 2015 to 99% in 2016. There are currently 11 enrolled PhD students. There were 102 peer reviewed articles and six chapters in books published by staff members. Twelve staff members have NRF ratings with 2 as category A2.

Proff ED Nel, H Rabie and R Solomons were promoted to associate professor while Prof P Goussard were appointed as the clinical unit head for paediatric pulmonology. Outstanding achievements included Dr Heather Finlayson appointed by the Minister of Health to serve on the Ministerial Advisory Committee (MAC) on Antimicrobial Resistance (AMR) and Dr Elmarie Malek appointed as member of the Task Team for Commissioner for Children, Department of Health.

Constraints experienced due to the financial savings plan with less session holders filled, especially in Paediatric Neurology and Neurodevelopment. Another constraint were a serious shortage of nursing staff, especially in critical care. Both paediatric endocrinology and oncology services experienced service constraints due to increase in patient numbers and acuity of disease.

Professor Mariana Kruger

Part 1

RESOURCES AND OUTPUT

Human Resources					
Posts (full-time)	Number	Filled			
Professor/Chief Specialists	2	2			
Chief Specialist	1	1			
Principal Specialists	4	4			
Senior Specialists	25+1(5/8)	25+1(5/8)			
Senior Registrars	6 (8 Supernumeraries)	6 (8 Supernumeraries)			
Registrars	32 (5 Supernumeraries)	32 (5 Supernumeraries)			
Medical Officer	24	24			
Posts (sessional – hours per week)					
Specialist	3 (27 hours)	3 (27 hours)			
Number of beds	268	268			

Summary of Output General Paediatrics	2016	2015	2014
Inpatients	9906	11238	11410
	(-11.8%)	(-1.5%)	(2.67% growth)
Outpatients	11983	14658	14872
	(-18%)	(-1.4%)	(11%)
Subspecialist Paediatrics			
Inpatients	5658	5902	6068
	(-4%)	(-2.7)	(3.8%)
Outpatients	13224	13384	13595
	(-1%)	(-1.5%)	(-3%)

Output

SUBSPECIALIST PAEDIATRICS

Total patient admissions 2016 (Clinicom data)

*A9 NICU	A9 PICU	A9 High Care	Trachea Unit	G1	G3	G9	G10	Total
442	661	108	96	1115	1004	1456	733	5615

*A9 NICU includes High-care beds, since Clinicom cannot separate data.

Bed Occupancy Rate 2016(Clinicom data)

*A9 NICU	A9 PICU	A9 High Care	Trachea Unit	G1	G3	G9	G10	Total
88%	82%	25%	44%	91%	73%	73%	75%	69 %

*A9 NICU includes High-care beds, since Clinicom cannot separate data.

Neonatology

Staff: Prof J Smith, Drs S Holgate, G Kali, JCF du Preez, H Hassan, L Van Wyk, L Lloyd, 3 Senior Registrars (Dr N Paulse, Dr MW Kariuki, Dr O Agyeman), 6 Registrars, 7 Medical Officers

Beds n=8	2016	2015	2014
Admissions	442	506	473
Average Hospital Stay in Days	9	7.9	8.1
Average Bed Occupancy %	88%	88.4%	134%
% Growth	-12.6%	+7%	-3.6%
Deaths	76 (17.1%)	101 (20%)	88 (18.6%)

A9 Intensive Care Unit

Staff: 1 Consultant (on rotation), 2 Registrars, 1 Medical Officer

• **Referrals from outside TCH** (out-borns) (n) = 158; 35.7% of admissions

- Referrals for therapeutic hypothermia from referring hospitals (n) = 52;
 22 from HHH and 20 from KBH
- Inborn babies for therapeutic hypothermia (n) = 45
- Total subjected to therapeutic hypothermia (n) = 97; 21.9 % of total admissions for 2016
- Cranial ultrasounds: 1010 (whole service)
- Neonatal echocardiography: 600 (whole service)

Ward G1: Neonatal Unit – Babies born outside TBH

Staff: 2 Consultants (on rotation), 1 Registrar, 2 Medical Officers, 1 Intern

Beds n=30	2016	2015	2014
Admissions	1115	1152	1168
Average Hospital Stay in Days	9	9.2	9.2
Average Bed Occupancy %	91%	95.3%	96%
% Growth	-3.2%	-1.3%	13.4%
Deaths	33 (3%)	36	30

A9 Paediatric Intensive Care Unit

Staff: Prof P Goussard, Drs N Parker, Dr I Appel, 3 Registrars, Medical Officer

Beds n=10	2016	2015	2014
Admissions	699	745	711
Average Hospital Stay in Days	5	4	5
Average Bed Occupancy %	82%	81.6%	97.4%
% Growth	-11%	4.6%	-10%
Deaths	60 (8.58%)	55 (7.39%)	76 (10.7%)

Beds n=10	2016	2015	2014
Admissions	661	745	711
Average Hospital Stay in Days	5	4	5
Average Bed Occupancy %	82%	81.6%	97.4%
% Growth	-11%	4.6%	-10%
Deaths	62	55 (7.39%)	76 (10.7%)

A9 Paediatric High Care Unit

Staff as mentioned above.

Beds n=4	2016	2015	2014
Admissions	108	220	333
Average Hospital Stay in Days	3.2	3	3.1
Average Bed Occupancy %	25%	45.2%	62%
Deaths	3	3	0

A9 Tracheostomy Unit

Staff as mentioned above:

Beds n=6	2016	2015	2014
Admissions	96	91	115
Average Bed Occupancy %	44%	69%	77.6%
Deaths	0]*	0

Ward G9 Paediatric Pulmonology and Allergy

Staff: Prof P Goussard, Dr J Morrison, 1 Senior Registrar (Dr L Green), 2 Registrars, Shared Medical Officer in G9

Pulmonology Beds n=10	2016	2015	2014
Admissions Pulmonology	977	925	817
Average Hospital Stay in Days	5.6	5.7	5.8
Average Bed Occupancy %	94%	92%	89.5%
% Growth	9%	9%	27.5%
Deaths	2	1	0

Theatre procedures and Other Activities

• Bronchoscopies: 550 Thoracic surgery: 63

Ward G9 Neurology

Staff: Prof R van Toorn, Prof R Solomons, Dr P Springer, 1 Senior Registrar (Dr A Thomas), 2 Registrars

Beds n=10 2016 2015 2014

Admissions	388	425	339
Average Hospital Stay in Days	6.1	6.2	5.9
Referral other wards	550	420	300
Average Bed Occupancy %	65%	68%	60%
% Growth	-8.8%	20%	-9%
Deaths	5 (1%)	3 (1.2%)	4(1.1%)

Other Activities

- Paediatric and neonatal EEG's reported by the 2 consultants: 587
- 6 Outreach clinics to Paarl hospital (patients seen): 96
- 4 Outreach clinics Worcester hospital (patients seen): 132
- 2 Clinics at Alta du Toit special school (patients seen): 45
- 8 Clinics Paarl School (patients seen): 90
- Autism Diagnostic Observations Schedule (ADOS) (patients): 16
- Griffith Developmental Scales assessments: 20

Ward G9 Paediatric Endocrinology

Staff: Prof E Zöllner, 1 Senior Registrar (Dr M Grantham), Registrar, and shared intern for G9

Beds n=5	2016	2015	2014
	95	105	118
Patients admitted	Diabetic	Diabetic	Diabetics
r dienis ddrinied	167	131	106
	Endocrinology	Endocrinology	Endocrinology
Admission Subtotal	262	236	224
Admissions other wards, day cases	14		
Admissions total	275		
Ward reviews	98		
Average Hospital Stay in Days	6	6	7
Average Bed Occupancy %	84% (not counting outliers)	80%	67%*
% Growth	17% (not counting ward reviews)	5%	24%
Rescheduled patients	46 (last 7 months of year only)		
Deaths	0	0	0

Endocrine tests performed; 114

Inpatient and outpatient workload has increased phenomenally over the last year – the latter mirroring the former. Patient numbers at diabetes and endocrine clinics have increased respectively by 5 and 4 % respectively.

Ward G10 Gastroenterology

Staff: Prof ED Nel, 1 Senior Registrar (Dr J Ikobah), Registrar, and one Intern.

Beds n=9	2016	2015	2014
Admissions	185	231	179
Average Hospital Stay in Days	11	8 (median 4.5)	7
Average Bed Occupancy %	75%	96%*	94%
% Growth	-19%	35%	-40%
Deaths	5 (2,7%)	5 (2%)	18 (10%)

*Clinicom data combined for gastroenterology and infectious diseases

Theatre procedures

- Paediatric Endoscopy: 67
- Adult Endoscopy: 273

Ward G10 Infectious Diseases Unit

Staff: Prof MF Cotton, Prof H Rabie (HIV Clinic), Dr L Frigati, Registrar, Shared Medical Officer for G7

Beds n=14	2016	2015	2014
Admissions	269	317	243
Average Hospital Stay in Days	14	12.7	12.5
Average Bed Occupancy %	75%	96%*	90%
% Growth	-15%	30%	28.57%
Deaths	2	2	4

* Clinicom data combined for gastroenterology and infectious diseases

- 10 new referrals per week.
- Telephonic referrals: 20 per week (including outside calls)
- Stewardship rounds: 2 per week.

HIV service:

- Total children followed up: 400
- Total New cases initiating and followed up at TBH: 88 children started (25 infants <12 months)
- Transfers out: 5
- Transfers in: 10

Ward G3 Oncology & Haematology

Staff: Prof M Kruger, Drs A van Zyl, R Uys, 2 Senior Registrars (Dr V Netshituni, Dr E Madzhia), 2 Registrars

Beds n=9	2016	2015	2014
	43	42	40 Haematology
New patients	Haematology	Haematology	
	72 Oncology	73 Oncology	56 Oncology
Admissions	759	678	596
Average Hospital Stay	6.05	4.9	5.25

in Days			
# Average Bed Occupancy %	148.25%	93.8%	74.3%
% Growth	10.67% in admissions 32.1% in day patients	12%	13.5%(**31.7%)
Deaths in G3	14	9	7
G3 Day Patients (Haem/Oncology)	2806	1905	1421
Chemotherapy administrations for day patients	4590	1944	
Bone marrow aspirations and biopsies	143	122	83
Intra-thecal procedures	263	286	269

Ward G3 Rheumatology & Immunology

Staff: Dr M Esser, Dr D Abraham (10 hrs per week), Registrar Shared with G3, Shared Medical Officer for G3

Beds n=4 (shared with Nephrology)	2016	2015	2014
Admissions	90	66	128
Average Hospital Stay in days	3	3	2
Average bed occupancy %		12%	86%
Deaths	0	0	0

Ward G3 Nephrology

Staff: Dr CJ du Buisson, Dr JL Shires – part-time, Registrar shared with Rheumatology&Immunology, Shared Intern for G3

Beds n=4	2016	2015	2014
Admissions	134	240	184
Average Hospital Stay in days	5	5	5
Average bed occupancy %	45%	75%	86%
% Growth	# -44%	31%	26%
Deaths	0	0	4
Renal Biopsies*	21	24	14
Acute Dialysis**	12	25	20
Renal patients outside of	354	282	286
G3***	26% increase		
Referrals****	345	313	392

- * Done in C4B Theatre under general anaesthesia, 4 biopsies where done in PICU
- ** All done in PICU and NICU
- *** Most of our patients are not in our ward, due to acute infections and inborn neonates are cared for in neonatal wards, thus neonates diagnosed antenatally. More patients where seen outside due to lack of space within G3 as we share with oncology and our patients are infectious.
- **** These are patients seen and only advise needed, not continuous care
- # This decrease was due to the increased number of oncology patients admitted, necessitating admitting nephrology patients in G10 (data not captured).

Ward G3 & G10 Cardiology

Staff: Tygerberg Hospital (TBH): Dr J Lawrenson, Dr B Fourie, 1 Senior Registrar (Dr L Swanson), 2 Registrars

Red Cross War Memorial Children's Hospital (RXH): 2 Consultants, 2 Senior Registrar

Beds n=10 (G3=5, G10=5)	2016	2015	2014
Admissions	171	194	194
Average Hospital Stay in Days	7	*	*
Average Bed Occupancy %	*	*	*
Inpatient Echocardiography	836	854	732
Inpatient Consultations	875	925	857
Deaths	3	2	0

* Clinicom data combined with nephrology and general paediatrics therefore not possible to calculate

Worcester Clinic: 105 patients Paarl Clinic: 62 patients

OUTPATIENT COMPLEX

Subspecialist Clinics

	2016	2015	2014	
Clinics	Total	Total	Total	
Haematology	307	311	262	
Immunology	191	156	164	
Oncology	361	376	344	
Pulmonology	1063	1015	1156	
Gastroenterology	563	605	726	
High-risk Babies	2005	2006	1973	
Neurology & Developmental paediatrics	2185	2375	2301	
Allergy	580	583	693	
Premature Follow-up	234	228	360	
Nephrology*	1469	1374	1345	
Cardiology	1073	1064	953	

Bronchopulmonary Dysplasia	0	3	21
Diabetic	703	670	633
Endocrinology	689	661	625
Rheumatology	348	351	283
Infectious diseases	890	983	1079
Genetics	393	415	391
Pharmacy prescriptions	170	208	286
Total	13224	13384	13595

*Centre for Referral for Congenital Anomalies of the Kidney and Urinary Tract.

GENERAL SPECIALIST SERVICES

Total Patient Admissions 2016 (Clinicom data)

GG Short Stay	G2	G7	G8	J3	Total
4643	2087	1191	1013	972	9906

Bed Occupancy Rate 2016 (Clinicom data)

GG Short Stay	G2	G7	G8	J3	Total
62%	104%	77%	88%	109%	88%

Neonatology

Ward G2 Neonatal Unit – Babies born in TBH

Staff: 2 Consultants (on rotation), 1 Registrar, 3 Medical Officers, 1 Intern (if available)

Beds n=27	2016	2015	2014	
Admissions	2087	2067	2182	
Average Hospital Stay in Days	5	5	4.6	
Average Bed Occupancy	104%	105.8%	104%	
% Growth	0.96%	-5.3%	-9.2%	
Deaths	94 (4.5%)	64 (3%)	120	

* Data from Clinicom

Ward J3 Neonatal Unit – Babies born in TBH

Staff: 1 Consultant (on rotation), 1 Registrar, 1 Medical Officer, 1 Intern

Beds n=25	2016	2015	2014
Admissions	972	1007	951
Average Hospital Stay in Days	10	10	10
Average Bed Occupancy	109%	114%	104%

% Growth	-3.4%	5.9%	3.6%
Deaths	1(0.1%)	2	0

Ward G8 Neonate & Kangaroo-mother Care – Step-down Facility

Staff: 1 Consultant (on rotation), 1 Registrar, 2 Interns

Beds n=30	2016	2015	2014
Admissions	1013	917	971
Average Hospital Stay in Days	10	10.8	10.3
Average bed occupancy %	88%	85.4%	89.75%
% Growth	10.4%	-5.5%	3.2%
Deaths	3 (0.3%)	4	2

*Data from Clinicom

Short-stay G Ground: <48-hour Admissions

Staff: Prof S Schaaf, Drs E Malek, L Smit, A Redfern, 2 Registrars, (1 Emergency Medicine Registrar), 2 Medical Officers, 2 Interns

Beds n=24	2016	2015	2014
Admissions	4643	5 943	6 029
Average Hospital Stay in Days	1	1.0	1.0
Average Bed Occupancy %	62%	81%	85%
% Growth	-22%	- 0%	+8%
Average Admissions per day	17	16	17
Deaths	16	14	19
HIV-related Mortality	0	2	0
HIV Exposed-related Mortality	2	4	4

Ward G7 General Paediatrics

Staff: Prof S Kling, Dr H Finlayson, 1 Registrar, 2 Medical Officers, 2 Interns

Beds n=25	2016	2015	2014
Admissions	1191	1232	1175
Average Hospital Stay in Days	6	*6.5	3.1
Average Bed occupancy	77%	*88.25%	89.6%
Increase in Admissions	-3.3%	+5%	-7%
Deaths	17	12(1%)	7 (0.6%)

*Clinicom data

General Paediatrics: Emergency & Clinics

Clinics	2016	2015	2014		
	•	•	•		

OPD 8am-4pm: Emergency &	7661 (GG total) 1643 OPD 6018 Emergency	9766 (GG total) 2 790 OPD 6 976 Emergency	9446 (GG)
Routine		645 (Delft)	462 (Delft)
Daily average seen	31	39	26
Annual OPD after hours: 4pm-8am & weekend – Emergency	4322	4892	5426
Daily average seen after hours (4pm-8am)	12	13	15
OPD after hours: 4pm-8am %	36%	34%	36%
Total	11983	14 658	14 872

2016 Morbidity & Mortality

PPIP data from PPIP database 2016 (NB. <u>Provisional</u> data only available from Jan – Oct)

Total births in TCH (TBH): n = 6515 (Stillbirths n = 386) Perinatal Mortality Rate (PNMR) (≥500g) = 70.5/1000

- Perinatal Mortality Rate (PNMR) (≥1000g) = 36.2/1000
- Early Neonatal Death Rate (ENNDR) (≥500g) = 11.9/1000
- Early Neonatal Death Rate (ENNDR) (≥1000g) = 5.1/1000

Mortality of babies born in TCH (TBH) per birth weight category: n=92 (*Note: only January – October data available)

Birth Weight	% Mortality 2016	% Mortality 2015	% Mortality 2014
≤1000g	25.1	9.5	19.7
1001 to 1500g	3.4	2.1	4.2
1501 to 1999g	1.5	0.0	0.6
2000 to 2499g	0.75	0.19	0.3
≥2500g	0.2	0.14	0.18

Causes of death of babies born in TCH (TBH): n=71

Cause of Death	% of Total 2016	% of Total 2015	% of Total 2014
Prematurity-related	60.8	49.3	60
Complications			
Infection-related	10.8	16.9	15.4
Peripartum Hypoxia	8.1	16.9	3.1
Congenital Anomalies	13.5	9.9	16.9
Other	6.8	7	4.6

Birth Weight*	%Mortality 2016 (n=62)	%Mortality 2015 (n=56)	%Mortality 2014 (n=48)
<1000g	25	23.2	10.4
1000 to 1499g	35	28.6	20.8
1500 to 1999g	10	5.3	8.3
2000 to 2499	7.5	8.9	20.8
≥2500g	25	30.4	31.2

% Deaths of babies referred to TCH per weight category

*Weight categories as a percentage of total deaths (outborn)

Outborn babies mortality according to referral area of origin

Geographic Service Area	2016 (n=62)	2015 (n=56)
Metro East	26	30
Winelands (Paarl area)	14	22
Overberg (Worcester drainage area)	5	4
Unknown	17	

Geographic distribution of the NICU admissions and death of babies born outside and referred to TCH

Place of Origin (Hospital)	Number deceased 2016	Number deceased 2015
Paarl	11	12
Helderberg	5	6
Karl Bremer	12	6
Worcester	3	2
Hermanus]	0
Khayelitsha	4	1
Swartland	2	2
Caledon]	0
Ander/Other	7	

CHIP MORTALITY for all sub-specialist paediatric wards (2016)

Audited deaths CHIP MORTALITY for all paediatric wards (2016)

CHIP Mortality	Total Admissions/ Tally	% Total	Deaths	Hosp Mortality Rate	Male	Female
*0-28 days	262	4.6	10	3.8	7	1
28 days – 1	1729	30.9	27	1.6	24	30
year						
1-5 year	2258	40.3	26	1.2	19	8
5-13 years	1164	20.8	14	1.2	7	13
13-18 years	182	3.2	3	1.63	1	1

Unknown]	1
Total	5595	80	54	59

*Please note: Excluding neonatal deaths reported under the PPIP section

Referral

Referring facility	Number	%
Not referred/not noted	39	
Community clinics		
Delft CHC	12	
Kraaifontein CHC	1	
Kleinvlei CHC	2	
Site B CHC	5	
Mfuleni CHC	1	
St Josephs Home	1	
Total	22	
Level 1 Metro		
Khayelitsha Hospital	11	
Helderberg Hospital	7	
Karl Bremer Hospital	11	
Eerste River Hospital	3	
Total	32	
Level 1 Outside Metro		
Stellenbosch Hospital	4	
Swartland Hospital	3	
Ceres Hospital	2	
Caledon Hospital	1	
Vredenburg Hospital	1	
Total	11	
Referral from Level 2		
Paarl Hospital	8	
Worcester Hospital	1	
Total	9	

Main Causes of Death in Children*	Number	%
Pneumonia ARI	18	15.5
Septicaemia, possible serious bacterial infection	13	11.2
Respiratory condition not ARI	13	
Cardiac congenital and acquired	10	8.6
CNS conditions	7	6
Chronic & severe acute liver disease	7	6
Acute Diarrhoea	5	4.3
Other diagnosis	5	4.3
Circulatory condition/undefined	4	3.4
Meningitis	4	3.4
Tuberculosis meningitis/Disseminated/extra pulmonary	4	3.4
*Please note: Other on markidition not reflected	•	

*Please note: Other co-morbidities not reflected.

HIV - mortality	Number	%
Negative	56	48.2
Not tested (not indicated)	20	17.2
Unknown	15	12.9
Exposed status not known	14	12
Infected	7	6.3
No result	4	3.4

Mortality according to Weight Category

Weight Category		%
	Number	/0
Normal	60	51.7
UWFA	25	21.5
Marasmus	9	7.7
Unknown	8	6.8
Over weight for age	5	4.3
Kwashiorkor	5	4.3
Marasmic-Kwashiorkor	4	3.44

Mortality per Ward Audited deaths only (from available CHIP data)

Ward	Number	%
Paediatric Intensive Care Unit	64	55.1
Acute Care (GG)	20	17.2
General Paediatrics (G7)	11	9.4
Gastroenterology (G10)	5	4.3
Infectious Diseases (G10)	4	3.4
High Care	3	2.5
Neurology (G9)	3	2.5
Cardiology (G10)	3	2.5
Respiratory (G9)	2	1.7
Oncology (G3)	1	0.8
Endocrinology (G9)	0	
Nephrology (G3)	0	
Total	116	

Mortality per Ward (Clinicom data)

Ward name	Freq	Percent	Cum.
A9 Paediatric High Care	3	0.85	26.06
A9 Paediatric ICU	57	16.15	42.21
G10 Infectious Diseases	13	3.68	55.52
G3 Paediatric Oncology	11	3.12	86.12
G7 General Paediatrics	13	3.68	90.08
G9 Paediatric	7	1.98	92.92
GG Paediatric Emergency	17	4.82	97.73

Table of Length of Stay*

Ward	Ν	Mean	SD (Min-Max)
A9 High Care	3	3	- (0-4)
A9 Intensive Care Unit	57	12.9	16.6 (0-75)
G10 (Combined speciality ward)	13	31.1	58.7 (0-212)
G3 (Combined speciality ward)	11	8.6	6.8 (1-22)
G7 General paediatrics	13	7.6	10.3 (1-39)
G9 (Combined speciality ward)	7	16.7	13.5 (3-39)
GG Emergency service	17	0.35	0.6 (0-2)

*Clinicom data

Infrastructure Development

Tygerberg Children's Hospital Trust Contribution to Infrastructure

DATE	SUPPLIER	EQUIPMENT	AMOUNT
05/04/2016	Interconne ct Systems	Equipment(Upgrade) – New Data Point	R5 390.55
13/04/2016	Drager South Africa (Pty) Ltd	Drager JM-103 Jaundice Meter	R46 000.00
24/10/2016	Tafelberg Furniture	Renovations for the Registrars kitchen and restroom A9: Bosch 4 Dishwasher, 8 desk lamps, bookshelf, 4 Plastic Black Dustbins	R7 050.00
24/10/2016	Bidvest Waltons	Purchase the following items for the Registrars kitchen A9: Toaster, forks, knifes, spoons	R1 232.20
28/10/2016	De Klerk Painters & Maintenan ce	Renovations at A9 Registrars restroom and Kitchen: Supplier all necessary materials and paint. Responsible for the removal of rubbish from premises. Building / break through wall to have one huge room, Rest room and install 2 x door with locks. Paint the restroom, kitchen and study room.	R22 350.00
04/11/2016	De Klerk Painters & Maintenan ce	Renovations at A9 Registrars restroom and Kitchen: Paint the restroom, kitchen and study room.	R1 600.00
02/12/2016	UBM Constructi ons	Renovations for the Registrars kitchen and restroom A9 Install dish washer water supply with tap and waste outlet; Supply and install 5L Hydro Boil in kitchen including the electrical connection.	R11662.20
TOTAL			R95 284.95

Part 2

Community Outreach Programmes/Community Service and Interaction & Partnerships

Expert Members

Prof Mariana Kruger

- Global Forum on Bioethics in Research (GFBR) Planning Committee Member since February 2016
- Member of an Expert Committee of the Medicines Control Council: Clinical Committee since November 2014
- Member of the Executive Committee of the South African Children's Cancer Study Group (SACCSG)
- Member Council of College of Paediatricians 2014-2017
- Member of the Provincial Clinical Governance Committee (PCGC)
- Member of the Senate Research Ethics Committee of Stellenbosch University
- Member of the Research Ethics Executive Committee of the Faculty of Medicine and Health Sciences, Stellenbosch University

Prof Sharon Kling

- Colleges of Medicine of South Africa (CMSA)
 - President, Council of College of Paediatricians 2014-2017
 - \circ $\,$ Senator, CMSA, for the triennium 2011 2014 and 2014 2017 $\,$
 - Member of Financial and General Purposes Committee 2011 2014 and 2014-2017
 - Member of Management Committee, Financial and General Purposes Committee, 2013 – date
- Ethics accreditor, CPD Committee, Faculty of Heath Sciences.
- Vice-chair, Undergraduate Research Ethics Committee (since 2015)
- Member of the Research Ethics Executive Committee of the Faculty of Medicine and Health Sciences, Stellenbosch University
- Member, Clinical Ethics Committee Tygerberg Hospital (2002 2004 and 2009 to current).
- Allergy Society of South Africa (ALLSA)
 - Member of Executive Committee since 1998
 - Chairman, Research Subcommittee (2011 to date)

Prof Anneke Hesseling

• NRF SARChi Chair in Paediatric Tuberculosis.

Prof Cotton

- Member of the Clinical Guideline Development Group (GDG) to support the update of the World Health Organization Consolidated Guidelines on the use of antiretroviral drugs for treating and preventing HIV infection
- WHO HIV/TB Task Force Advisor

Prof Beyers

- National Department of Health
- POPART Zambia & RSA

Prof HS Schaaf

- Board of Directors and Chairperson of Adult and Child Lung Health section, The Union (International Union Against Tuberculosis and Lung Disease)
- Expert on ATS/CDC committee for new TB guidelines
- MDR-TB Review Board Western Cape
- Member of the Subcommittee C of the Research Committee, Faculty of Medicine and Health Sciences

Prof E Zöllner

• Safety representative on Health and Safety Committee, Faculty of Medicine and Health Sciences

Prof P Goussard & Dr S Holgate

• Health Research Ethics Committee, Faculty of Medicine and Health Sciences

Dr A Bekker

- International Maternal Pediatric Adolescent AIDS Clinical Trials Network (IMPAACT) P1106 vice-chair
- CDC: Tuberculosis Trials Consortium (TBTC) Tuberculosis and Pregnancy Working Group - membership

Drs GTJ Kali& & S Holgate

• USANA executive committee members – organiser and treasurer respectively

Prof R van Toorn

• PANDA executive committee member -treasurer

Outreach

International

• Proff M Kruger & PB Hesseling – Childhood cancer Cameroon

Regional and District

- Worcester Prof M Kruger, Prof R van Toorn, Dr R Solomons, J Lawrenson, C du Buisson
- Paarl Prof P Goussard, Dr H Rabie, Prof R van Toorn, Dr R Solomons, HIV outreach, Dr Frigati
- Delft Drs L Smit, R Gioio (HIV outreach)
- Helderberg Dr T Wessels; Perinatal Dr H Hassan, Dr Frigati, (HIV outreach)
- Khayalitsha district hospital Dr Rabie
- Eersterivier Drs H Finlayson (HIV outreach), M du Preez
- Ikwezi clinic HIV outreach
- Bishop Lavis clinic, HIV outreach
- Grabouw CHC HIV outreach
- Kraaifontein CHC HIV outreach
- City of Cape Town DTTC

- DTTC skills development in the community
- Karl Bremer Hospital, Haemophilia, Childhood Cancer Dr A van Zyl; Perinatal – Dr H Hassan, Prof S Kling (General Paediatrics) and Dr H Finlayson (Antibiotic Stewardship)
- George Dr B Fourie. Dr J Lawrenson
- East London Dr J Lawrenson
- Brooklyn Chest Hospital Prof HS Schaaf, Dr H Finlayson
- Paarl School for Children with Cerebral Palsy, Brackenfell---Dr Cilla Springer
- Orientation Workshops of the Eastern Cape Department of Health for multidrug resistant tuberculosis and the new shortened regimen, February 2017 Prof PR Donald.

Media Exposure

TV/Radio Interviews:

- Dr JCF Du Preez Cape Talk, Voice of the Cape
- Prof J Smith KFM 17 Nov 2016 (Premmie Day)
- Prof M Kruger CCTV: Women's Talk Invited speaker Mandela Day 18 July 2016
- Prof R Solomons- Radio Al Ansaar, KZN- TB meningitis- June 2016
- Prof R Solomons- Umhlobo Wa Nene- TB meningitis in children- June 2016

Articles:

Name of publication: Stellenbosch University Webpage News Name of article: Reading project inspires change at Tygerberg Children's Hospital (Dr M du Preez) Date: 4 February 2016

Name of publication: Stellenbosch University Student News Name of article: Stellenbosch University researcher committed to lifelong learning (MS M Zunza) Date: 17 March 2016

Name of publication: News24 Name of article: Never give up on your dreams, says Stellenbosch graduate (MS M Zunza) Date: 18 March 2016

Name of publication: Stellenbosch University Webpage News Name of article: Foundation for life laid in first 1 000 days (Prof M Kruger) Date: 18 March 2016

Name of publication: The Weekend Witness Name of article: Zim mom gets doctorate, degree on same day (MS M Zunza) Date: 19 March 2016

Name of publication: Cape Argus

Name of article: Call for dedicated breast-feeding spots in public spaces (Prof M Kruger) Date: 22 March 2016

Name of publication: Cape Talk Name of article: Breast is best and dedicated public spaces would help make breastfeeding easier(Prof M Kruger) Date: 23 March 2016

Name of publication: The Conversation Name of article: Four things parents can do to keep their kids' kidneys health (Dr CJ du Buisson) Date: 1 April 2016

Name of publication: Cape Argus Name of article: TB meningitis in kids 'fully treatable if detected early' (Prof R Solomons) Date: 14 June 2016

Name of publication: Health 24 Name of article: Treatable TB meningitis disables too many SA children (Prof R Solomons) Date: 14 June 2016

Name of publication: Jump Name of article: Fever Facts (Dr H Finlayson) Date: 21 June 2016

Name of publication: Tygerburger Name of article: Children's ward gets some colour (Tygerberg Hospital School) Date: 21 September 2016

Name of publication: Stellenbosch University Webpage News Name of article: More children survive cancer (Prof M Kruger) Date: 8 September 2016

Dr A Bekker Print: Hope for pregnant women and babies with TB. Vivus, 2016. www0.sun.ac.za/.../hope-for-pregnant-women-and-babies-with-tb.html

Part 3

Teaching & Training

Education-related Activities

Postgraduate Students

Successful PhD Candidates

- **Dr A Bekker**: Title: Prevention And Treatment Of Perinatal And Infant Tuberculosis In The HIV Era. Supervisors: Proff AC Hesseling, HS Schaaf
- Ms M Zunza: Title: Prolonged Breastfeeding with Antiretroviral Prophylaxis or Commercial Infant Formula Milk and associated health outcomes: A comparative study of a birth cohort of HIV-exposed infants in public health care setting. Supervisors: Prof MF Cotton, Dr MM Esser
 - Ms Zunza also received her BCom Honours degree from Stellenbosch University in December 2016.

Enrolled PhD students

- **Dr P Bock :** Title: Impact of a Universal Test and Treat strategy on clinical outcomes amongst HIV infected adults in South Africa: Supervisor: Prof N Beyers, Dr S Fidler
- Dr A Dramowski: Title: Determinants Of Healthcare-Associated Infections Among Hospitalised Children. Supervisors: Proff MF Cotton, A Whitelaw
- **Mr R Dunbar:** Title: How can virtual implementation modelling inform the scale-up of new molecular diagnostic tools for tuberculosis? Supervisor: Prof N Beyers, Mr I Langley
- **Dr GTJ Kali**: Title: A comparative study of neuroprotective strategies in neonatal hypoxic ischaemic encephalopathy. Supervisors: Prof J Smith, M Rutherford
- **Dr B Laughton:** Title: The effects of early versus delayed antiretroviral treatment on the short and long term neurodevelopmental outcome of children who are HIV positive. Supervisor: Prof MF Cotton, Prof M Kruger
- Dr F Marx: Title: Mathematical modelling to project the impact of interventions targeted to previously treated individuals on the trajectory of the tuberculosis epidemic in high tuberculosis prevalence settings Supervisors: Prof N Beyers, Prof T Cohen
- Dr S-A Meehan: Title: The contribution of a community based HIV counselling and testing (HCT) initiative in working towards increasing access to HIV counselling and testing in Cape Town, South Africa. Supervisors: Proff N Beyers, R Burger
- Dr P Naidoo: Title: Evaluating the Impact of an Xpert® MTB/RIF- based TB Diagnostic Algorithm in a Routine Operational Setting in Cape Town. Supervisors: Prof N Beyers, Dr C Lombard

- **Dr H Rabie**: Title: Pharmacokinetics and therapeutic outcomes of children with tuberculosis/HIV co-infection treated with lopinavir/ritonavir and a rifampicincontaining anti-tuberculosis regimen. Supervisors: Proff MF Cotton, HS Schaaf, RP Gie
- **Dr P Springer:** Neurodevelopmental Outcome of the HIV exposed but uninfected Infant and evaluation of a developmental screening tool. Supervisors: Prof Mariana Kruger, Prof Christopher Molteno
- Dr E Walters: Title: Novel diagnostic strategies and markers of treatment response for paediatric pulmonary tuberculosis. Supervisors: Proff AC Hesseling, RP Gie

Successful MMed(Paed) Candidates

- Dr Ashton Coetzee: The role of lumbar puncture in young infants presenting with seizures and fever in a resource poor setting. Supervisors: Prof R Solomons, Dr L Smit
- Dr Andre Gie: Utility of Open Lung Biopsy in a Paediatric Intensive Care Unit. Supervisors: Proff S Kling, P Goussard
- Dr Chandre Geldenhuys: Central Line-associated Bloodstream Infections in a resource-limited Neonatal Intensive Care Unit in South Africa. Supervisors: Drs A Bekker, A Dramowski
- **Dr Lindy-Lee Green**: Predicting the risk of adverse events in children with febrile neutropenia validation of a clinical risk assessment tool. *Supervisor: Prof M Kruger*
- **Dr Wayne Hough**: Establish the prevalence of metabolic syndrome (MS) and fatty liver disease in obese patients. Supervisor: *Prof EWA Zollner*
- Dr Chané Kay: A cost analysis of Paediatric Cancers. Supervisors: Dr A van Zyl/Prof DC Stefan
- Dr Osee Robert Karangwa: A retrospective review of the outcome of children presenting to TCH with biliary atresia. Supervisor: Prof ED Nel
- Dr Yajna Kooblal: Unlicensed and off label drug use in the sub speciality wards. Supervisor: Prof M Kruger
- Dr Hennie Liebenberg: A retrospective review of paediatric cerebral venous sinus thrombosis in a South African Tertiary Hospital. Supervisors: Dr ED Nel, Prof R Solomons
- Dr Marang Molotsi: Relationship between serum sodium levels and neurodevelopmental outcome of cooled HIE babies. Supervisors: Dr G Kali, Prof J Smith
- Dr Muneerah Satardien: The value of head computed tomography (CT) in children presenting with focal seizures to a paediatric ambulatory unit in a resource poor setting. Supervisor: Dr L Smit

- Dr Leana van Dyk: The impact of familial environmental factors in the development of ADHD in South African children. Supervisors: Prof R van Toorn, Dr P Springer
- Dr Irwin Webster: Paediatric Bronchoscopy: A retrospective analysis at TBH from 2009 to 2013. Supervisor: Prof P Goussard

Colleges of Medicine of South Africa (CMSA)

- Certificate in Neonatology
 - o Dr Zaheera Kajee
- Certificate in Medical Oncology
 - o Dr Vutshilo Netshituni
- Certificate in Infectious Diseases (Paeds)
 - o Dr Buhle Makongwana

• FC Paed (SA) Part II

- o Dr Salah Abumhara
- o Dr Kate Carkeek
- o Dr Ashton Coetzee
- o Dr Sam Fry
- o Dr Andre Gie
- o Dr Wayne Hough
- o Dr Shaegan Irusen
- Dr Carmen Jacobs
- o Dr Thembi Katangwe
- o Dr Chané Kay
- o Dr Aruna Lakhan
- o Dr Hennie Liebenberg
- o Dr Marang Molotsi
- o Dr Yabwiule Mulambia
- o Dr Leana van Dyk
- Dr Frans van der Westhuizen
- Dr Andrew van Eck

• FC Paed (SA) Part I

- o Dr Larissa Barker
- o Dr Carien Bekker
- o Dr Lynn Booysen
- o Dr Tracey Cummins
- o Dr Derrik du Toit
- o Dr Louise Erasmus
- o Dr Muhammad Mathure

- Dr Lorraine Ndjoze
- o Dr Luvina Nuckchedee Dookhony
- Dr Sandra Sebitosi-Van Jaarsveld
- Dr Nightingale Sekgabo

Undergraduate Students

99% pass rate (2015 = 98%)

Education-related Activities

- The Education Committees of the Department comprised as follows:
 - Undergraduate: Dr L Smit (Chairperson), Prof S Kling (secunde)
 - MBChB II: Drs R Uys, E Malek, I Appel, A Bekker, L LLoyd
 - Early rotation: Drs L Frigati, C du Buisson, H Hassan, S Holgate, Prof R Solomons, Drs B Makongwana, A Thomas, M Morkel, Sr L Yzelle
 - Middle rotation: Drs A Redfern, N Parker, H Finlayson, L Swanson, G Kali, A Bekker, DR Abraham, B Fourie
 - SI: Drs M du Preez, L Smit, A van Zyl, S Holgate, C Springer, Prof E Zöllner, Drs M Morkel, V Netshituni
 - Remedial: Dr M Morkel, Sr L Yzelle
 - Elective students: Drs H Finlayson, I Appel, Prof M Kruger
 - Postgraduate: Proff R van Toorn (chairperson), M Kruger, ED Nel, H Rabie, P Goussard, HS Schaaf, Dr G Kali
 - PhD: Proff M Kruger (Chairperson), MF Cotton, AC Hesseling, HS Schaaf, J Smith
- All consultants are involved with under- and postgraduate teaching on a daily basis. Additional education activities included:
- External examiners at universities in South Africa:
 - Undergraduate:
 - Dr L Smit: MEDUNSA, University of the Free State
 - Dr I Appel: Sefako Makgatho Health Sciences University
 - Dr H Hassan, University of Kwazulu-Natal
- Senior registrars in training:
 - Neonatology: Drs N Paulse, Dr M Kariuki (Supernumerary from Kenya), Dr K Onwona-Agyeman (Supernumerary from Ghana)
 - Paediatric Oncology: Drs V Netshituni, El Madzia (supernumerary from Gauteng Department of Health), F Tchintseme Kouya (Supernumerary from Cameroon)
 - Paediatric Infectious Diseases: Dr B Makongwana (Supernumerary from Eastern Cape)
 - Paediatric Cardiology: Dr L Swanson
 - Developmental Paediatric: Dr A Thomas, with Life Healthcare Scholarship
 - o Paediatric Rheumatology: Dr Abraham
 - Paediatric Endocrinology: Dr M Grantham
 - Paediatric Pulmonology: Dr L-L Green

- Paediatric Gastroenterology: Dr JM Ikobah, sponsored by a Nestle Nutrition Institute Fellowship endorsed by the European Society of Paediatric Gastroenterology, Dr FO Adeniyi (Supernumerary from Nigeria)
- Colleges of Medicine of South Africa (CMSA):
 - Convenors (C)/Moderator (M)/External Examiners (EE):
 - Cert Neonatology: Prof J Smith, Dr GTJ Kali
 - Cert Paediatric Neurology: Proff R Solomons, R van Toorn
 - FC Paed Part 1: Dr S Holgate
- Lectures at courses
 - Cranial US & functional echocardiography training (Dr L Van Wyk): Dr Z Kajee & Dr L Lloyd
- South African Research Ethics Training Initiative (SARETI) UKZN, funded by Fogarty International Fogarty International Center (FIC) of the National Institutes of Health (NIH), grant number 6R25TW001599-13: Prof M Kruger (Co-principal Director)

Part 4

Achievements and Highlights

Prof Pierre Goussard appointed as Head Clinical Unit: Paediatric Pulmonology from 1 May 2016

Prof Regan Solomons appointed as Associate Professor from 1 June 2016. **Prof Etienne Nel** appointed as Associate Professor from 1 November 2016 **Prof Helena Rabie** appointed as Associate Professor from 1 November 2016 **Dr Heather Finlayson** appointed by the Minister of Health to serve on the Ministerial Advisory Committee (MAC) on Antimicrobial Resistance (AMR) for a period of 3 years.

Dr Elmarie Malek appointed as member of the Task Team for Commissioner for Children, Department of Health, Western Cape Government for a period of 6 months from July 2016.

NRF ratings:

New:

0	Prof P Goussard	C2
0	Prof PB Hesseling	C2

o Prof R Solomons Y2

Existing:

<i>.</i>		
0	Prof MF Cotton	A2
0	Prof PR Donald	A2
0	Prof HS Schaaf	A2
0	Prof EWA Zöllner	C3
0	Dr A Bekker	C3
0	Prof J Smith	C2

0	Prof R Van Toorn	C2
\circ		02

- o Dr H Rabie C3
- o Dr S Innes Y2

Prof MF Cotton was given a special award on 1 September 2016 by the NRF for receiving an A-rating.

The **second Annual Paediatric Registrar Research Day** was held on Wednesday 9 November here in the Faculty where 6 registrars presented their research. The prize for best research was awarded to Dr Carmen Jacobs for the best presentation.

The **sixth annual Paediatric Academic Day of Excellence** was held on Friday 11 November 2016 in the Faculty titled: "A Panoramic View of Paediatrics".

Prof EWA Zöllner is the recipient of the 2016 Roche Travel Fellowship as well as the AstraZeneca SATS Research Fellowship of R100 000 for 2017; also awarded best poster at 2016 SEMDSA Congress together with Dr M Grantham for the paper entitled "Is genotyping useful in neonatal diabetes mellitus?"

Prof Ronald van Toorn was awarded the Paul Harris fellowship award by Rotary Club Blouberg (via Rotary international)

Dr Angela Dramowski is a co-investigator and study co-ordinator for a new collaborative pilot project with seed funding from the Bill & Melinda Gates Foundation.

The project will study the impact of antimicrobial resistance at two African hospitals: Tygerberg, South Africa and Kilifi District Hospital in Kenya and is entitled: "Estimating excess mortality risk from antibiotic-resistant Gram negative bacteraemia in hospitalized African patients."

The PI is Dr Alex Aiken from The London School of Hygiene and Tropical Medicine (where the grant administration will be based). The study team will be required to submit a proposal for a large-scale project (\$1 million USD) in 18 months' time.

Dr B Laughton, Prof MF Cotton and Prof GB Theron have been awarded an NIH R01 grant - US\$ 820,141.00 over 5 years. Project title: Neonatal imaging as an early marker of neurodevelopment and predictor of cognitive performance in infants exposed to HIV and ART in utero and perinatally.

Publications

Journal Articles (subsidised)

1. ACKERMANN C, ANDRONIKOU S, SALEH MG, LAUGHTON B, ALHAMUD A, VAN DER KOUWE A, KIDD M, COTTON MF, MEINTJES EM. Early Antiretroviral Therapy in HIV Infected Children Is Associated with Diffuse White Matter Structural Abnormality and Corpus Callosum Sparing. AMERICAN JOURNAL OF NEURORADIOLOGY 2016; **37**:2363-2369.

- 2. ARAUJO DA SILVA AR, ZINGG W, DRAMOWSKI A, BIELICKI JA, SHARLAND M. Most international guidelines on prevention of healthcareassociated infection lack comprehensive recommendations for neonates and children. JOURNAL OF HOSPITAL INFECTION 2016; **94**:159-162.
- 3. BAHR NC, MARAIS S, CAWS M, VAN CREVEL R, WILKINSON RJ, TYAGI JS, THWAITES GE, BOULWARE DR, SCHOEMAN JF, SOLOMONS RS, VAN TOORN R. GeneXpert MTB/Rif to diagnose tuberculous meningitis: Perhaps the first test but not the last. *CLINICAL INFECTIOUS DISEASES* 2016; **62**(9):1133-1135.
- 4. BAILEY SL, AYLES H, BEYERS N, GODFREY-FAUSETT P, MUYOYETA M, DU TOIT EJO, YUDKIN JS, FLOYD S. Diabetes mellitus in Zambia and the Western Cape province of South Africa: Prevalence, risk factors, diagnosis and management. DIABETES RESEARCH AND CLINICAL PRACTICE 2016; 118:1-11.
- 5. BAILEY SL, AYLES H, BEYERS N, GODREY-FAUSSETT P, MUYOYETA M, DU TOIT EJO, YUDKIN JS, FLOYD S. The association of hyperglycaemia with prevalent tuberculosis: a population-based cross-sectional study. BMC INFECTIOUS DISEASES 2016; **16**:733.
- 6. BARLOW-MOSHA L, ANGELIDOU K, LINDSEY JC, ARCHARY M, COTTON MF, DITTMER S, FAIRLIE L, KABUGHO E, KAMTHUNZI P, MBENGERANWA T, KINIKAR A, ET AL . Nevirapine- Versus Lopinavir/Ritonavir-Based Antiretroviral Therapy in HIV-Infected Infants and Young Children: Longterm Follow-up of the IMPAACT P1060 Randomized Trial. *CLINICAL INFECTIOUS DISEASES* 2016; **63**:1113-1121.
- 7. BEKKER A, SCHAAF HS, DRAPER HR, KRIEL M, HESSELING AC. Tuberculosis Disease during Pregnancy and Treatment Outcomes in HIV-Infected and Uninfected Women at a Referral Hospital in Cape Town. *PLoS One* 2016; **11**(11):e0164249.
- BEKKER A, SCHAAF HS, DRAPER HR, VAN DER LAAN LE, MURRAY S, 8. WIESNER L, DONALD PR, MCILLERON Η, HESSELING AC. pyrazinamide Pharmacokinetics of rifampicin, isoniazid, and ethambutol in infants dosed at revised WHO-recommended treatment guidelines. ANTIMICROBIAL AGENTS AND CHEMOTHERAPY 2016; **60**(4):2171-2179.
- BENERI CA, AARON L, KIM S, JEAN-PHILIPPE P, MADHI SA, VIOLARI A, COTTON MF, MITCHELL C, NACHMAN S. Understanding NIH clinical case definitions for pediatric intrathoracic TB by applying them to a clinical trial. INTERNATIONAL JOURNAL OF TUBERCULOSIS AND LUNG DISEASE 2016; 20(1):93-100.
- 10. BOCK PA, JAMES A, NIKUZE A, PETON N, SABAPATHY K, MILLS E, FIDLER S, FORD N. Baseline CD4 count and adherence to antiretroviral therapy: a

systematic review and meta-analysis. Journal of Acquired Immune Deficiency Syndromes 2016; **73**(5):514-521.

- 11. BOCK PA. Acute care an important component of the continuum of care for HIV and tuberculosis in developing countries. ** JOURNAL** 2016; PAGE/START OR PAGE RANGE**.
- 12. BOHLIUS J, MAXWELL N, SPOERRI A, WAINWRIGHT RD, SAWRY S, POOLE J, ELEY B, PROZESKY HW, RABIE H, GARONE D, TECHNAU K, MASKEW M, STEFAN DC, ET AL. Incidence of AIDS-defining and Other Cancers in HIV-positive Children in South Africa. *PEDIATRIC INFECTIOUS DISEASE JOURNAL* 2016; **35**(6):e164-e170.
- 13. BOND V, CHITI B, HODDINOTT G, REYNOLDS LJ, SCHAAP AB, SIMUYABA M, NDUBANI R, VILJOEN L, SIMWINGA M, FIDLER S, ET AL. 'The difference that makes a difference': Highlighting the role of variable contexts within a HIV Prevention Community Randomised Trial (HPTN071/PopART) in 21 study communities in Zambia and South Africa. AIDS Care - Psychological and Socio-Medical Aspects of AIDS/HIV 2016; 28(s3):99-107.
- 14. BOND V, HODDINOTT G, VILJOEN L, SIMUYABA M, MUSHEKE M, SEELEY J, BEYERS N. Good health and moral responsibility: key concepts underlying the interpretation of treatment as prevention in South Africa and Zambia before rolling out universal HIV testing and treatment. *AIDS PATIENT CARE AND STDS* 2016; **30**(9):425-434.
- 15. CHARLES MK, LINDEGREN ML, WESTER CW, BLEVINS M, STERLING TR, DUNG NT, DUSINGIZE JC, AVIT-EDI D, DURIER N, CASTELNUOVO B, ET AL, RABIE H. Implementation of tuberculosis intensive case finding, isoniazid preventive therapy, and infection control ("Three I's") and HIVtuberculosis service integration in lower income countries. *PLoS One* 2016; **11**(4):e0153243.
- 16. CLAASSENS MM, VAN SCHALKWYK C, DUNBAR R, AYLES H, BEYERS N. Patient diagnostic rate as indicator of tuberculosis case detection, South Africa. EMERGING INFECTIOUS DISEASES 2016; **22**(3):535-537.
- 17. COSTENARO P, MASSAVON W, LUNDIN R, NABACHWA SM, FREGONESE F, MORELLI E, ALOWO A, MUSOKE MN, NAMISI CP, KIZITO S, BILARDI D, MAZZA A, COTTON MF, GIAQUINTO C, PENAZZATO M. Implementation of the WHO 2011 Recommendations for Isoniazid Preventive Therapy (IPT) in Children Living with HIV/AIDS: A Ugandan Experience. Journal of Acquired Immune Deficiency Syndromes 2016; 71(1):e1-e8.
- 18. DAHOUROU DL, AMORISSANI-FOLQUET M, COULIBALY M, AVIT-EDI D, MEDA N, TIMITE-KONAN M, ARENDT V, YE D, AMANI-BOSSE C, SALAMON R, ET AL, COTTON MF. Missed opportunities of inclusion in a cohort of HIV-infected children to initiate antiretroviral treatment before the age of two in West Africa, 2011 to 2013. Journal of the International AIDS Society 2016; 19:20601.
- 19. DE DECKER R, BRUWER Z, HENDRICKS L, SCHOEMAN M, SCHUTTE G, LAWRENSON J. Predicted v. real prevalence of the 22q11.2 deletion

syndrome in children with congenital heart disease presenting to Red Cross War Memorial Children's Hospital, South Africa: A prospective study. SAMJ SOUTH AFRICAN MEDICAL JOURNAL 2016; **106**(6):s82-S86.

- 20. DE DECKER R, COMITIS G, THOMAS J, VAN DER MERWE EL, LAWRENSON J. A novel approach to ductal spasm during percutaneous device occlusion of patent ductus arteriosus. CARDIOLOGY IN THE YOUNG 2016; **26**(7):1352-1358.
- 21. DETJEN AK, WALTERS E. Improving Children's Access to New Tuberculosis Diagnostic Tools Starts With the Collection of Appropriate Specimens. *CLINICAL INFECTIOUS DISEASES* 2016; **62**(9):1169-1171.
- 22. DODD PJ, LOOKER C, PLUMB ID, BOND V, SCHAAP AB, SHANAUBE K, MUYOYETA M, VYNNYCKY E, GODFREY-FAUSETT P, CORBETT EL, BEYERS N, ET AL. Age- and Sex-specific social contact patterns and incidence of mycobacterium tuberculosis infection. AMERICAN JOURNAL OF EPIDEMIOLOGY 2016; **183**(2):156-166.
- 23. DONALD PR, VAN TOORN R. Use of corticosteroids in tuberculous meningitis. Lancet 2016; **387**:2585-2587.
- 24. DONALD PR. Chemotherapy for Tuberculous Meningitis. NEW ENGLAND JOURNAL OF MEDICINE 2016; **374**(2):179-181.
- 25. DRAMOWSKI A, WHITELAW AC, COTTON MF. Assessment of terminal cleaning in pediatric isolation rooms: Options for low-resource settings. AMERICAN JOURNAL OF INFECTION CONTROL 2016; **44**(12):1558-1564.
- 26. DRAMOWSKI A, WHITELAW AC, COTTON MF. Burden, spectrum and impact of healthcare-associated infection at a South African children's hospital. JOURNAL OF HOSPITAL INFECTION 2016; **94**:364-372.
- 27. DRAMOWSKI A, WHITELAW AC, COTTON MF. Healthcare-associated infections in children: knowledge, attitudes and practice of paediatric healthcare providers at Tygerberg hospital, Cape Town. Paediatrics and International Child Health 2016; **36**(3):225-231.
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Journal Articles (NON-subsidised)

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- 5. SCHAAF HS, GARCIA-PRATS AJ. Diagnosis of the most common forms of extrathoracic tuberculosis in children. In: Starke JR, DONALD PR (eds.) Handbook of Children and Adolescent Tuberculosis, Oxford University Press, Cape Town, South Africa, 2016: 177-199.
- 6. VAN TOORN R. Central Nervous System Tuberculosis in Children. In: Starke JR, DONALD PR (eds.) Handbook of Child and Adolescent Tuberculosis, Oxford University Press, Cape Town, South Africa, 2016: 201-216.

NAME	COURSES ATTENDED	DATES	TYPE OF TRAINING	PROVIDER
Appel,I	Attended and presented a poster on "Acquired infections in paediatric patients after cardiac care"8th World Congress on Pediatric Intensive Care, Toronto,Canada	4-8 June 2016	Conference	Kenes International Organizers of Congresses S.A.
	Invited speaker and attended the Critical Care Congress of SA, Presentation: Use of Red Blood Cell transfusion in the PICU.	Aug 2016	Conference	Critical Care Congress of SA
	Instructor on APLS courses in Durban,	Aug 2016	Instructor	APLS courses in Durban

Courses & Conferences Attended and/or Participated

NAME	COURSES ATTENDED	DATES	TYPE OF TRAINING	PROVIDER
	Instructor on APLS courses in Cape Town	September 2016	Instructor	APLS courses in Cape Town
	External examiner at SMU, for VI MBChB exams.	September 2016	Examiner	SMU, VI MBChB
Bekker,A	CME MEETING 2016	11 Aug 2016	Course	SU
	GCP Refresher Course	5 August 2016	Course	Society of Medical Laboratory Technologists of South Africa
Beyers,N	PopArt Workshop	1-5 February 2016	Workshop	PopArt
Cotton,M	PENTA Conference in India	26-30 January 2016	Conference	PENTA Conference
	Epiitical Meeting in Rome	11-13 February	Meeting	Epiitical Meeting
	SAIS 5th Conference of the South African Immunology Society JHB	6-9 March 2016	Course	South African Immunology Society
	Tr@inforPedHIV Course,Tanzania	10-11 March 2016	Conference	PENTA / ESPID / EuroCoord
	SACORE Conference ,Malawi	16-17 March 2016	Conference	SACORE
	SAHIVCSOC SOUTHERN AFRICAN HIV CLINICIANS SOCIETY CONFERENCE,JHB	13-16 April 2016	Workshop	SOUTHERN AFRICAN HIV CLINICIANS SOCIETY CONFERENCE
	4th Annual Bioethics Seminar, Spier, Stellenbosch	23 April 2016	Conference	4th Annual Bioethics ,US
	CTC Industry Workshop	11 May 2016	Workshop	Pretoria
	STOP TB Conference, Abudja, Nigeria	17-18 May 2016	Conference	The National Tuberculosis & Leprosy Control Programme (NTBLCP)
	Paeds HIV Workshop and IAS,Vancouver CA	14-15 July 2016	Workshop	AIDS Conference
	Paeds HIV Workshop and IAS ,Durban	18-22 July 2016	Workshop	AIDS Conference
Du Preez,J	African Doctoral Academy Summer school(ADA)	18-22 January 2016	Workshop	SU
	GCP Course Mother & Infant Health Workshop	25-26 January 2016	Course	SU
	BARNARDS-study Congress, Vinyard Hotel	17-18 May 2016	Conference	Barnards-study Congress
Finlayson, H	ECCMID Conference, Amsterdam	9-12 April 2016	Conference	European Congress of Clinical Microbiology and Infectious Diseases
Fourie,B	Prontak Course Intervention Workshop, Red Cross Children`s Hospital	26 January 2016 14-18 March 2016	Course Workshop	PRONTAK UCT
Goussard,P	Predac Course ADA Summer School,Doctoral Supervision Course	12-13 July 2016 18-22 January 2016	Course Course	SU SU

NAME	COURSES	DATES	TYPE OF	PROVIDER
	ATTENDED		TRAINING	
	Here be lungs Congress,Lanrac, Stellenbosch	17-18 March 2016	Conference	SU
	Pediatric Pulmonology XV, Naples, Italy	23-26 June 2016	Congress	International Congress of Pediatric Pulmonology
Holgate, S	Training at AMS	1 February 2016	Course	AMS
	CMSA Examiners Workshop	29 March 2016	Workshop	The Colleges of Medicine South Africa
	ECCI Conference, Venice , Italy	24-26 April 2016	Conference	European Congenital Cytomegalovirus Initiative
	HREC workshop	5 August 2016	Workshop	SU
	Ventilation Workshop	21-22 November 2016	Workshop	SU
	ISTAN SIM Training	24-25 November 2016	Course	STAN SIM Training
Ikobah, J	Fellow Weekend,Spier	5-7 February 2016	Conference	Gastroenterology Hepatology and Nutrition
	Gastroenterology Conference India	11-14 Feb 2016	Conference	Gastroenterology Conference India
	ESPGHAN Conference ,Athens	25-28 May 2016	Conference	European Society for Paediatric Gastroenterology, Hepatology and Nutrition
	South African Paediatric Association Conference ,Durban	31 July-4 August 2016	Conference	South African Paediatric Association Conference
Kali, G	ADA Summer School,Doctoral Supervision Course	18-22 January 2016	Course	SU
	SAPA congress, Durban	31 August – 3 September 2016	Conference	SAPA
Kling, S	HREC workshop	5 August 2016	Workshop	University Stellenbosch
Kooblah, Y	ADA Summer School	8-22 Jan 2016	Workshop	SU
Kruger, M	How to manage Retinoblastoma in 2016, Barcelona, Spain	10-11 June 2016	Conference	How to manage Retinoblastoma, Barcelona, Spain
	AIDS Malignancy Consortium (AMC) International Strategic Planning and Priority Setting Meeting, Cape Town, South Africa	17 July 2016	Meeting	AIDS Malignancy Consortium (AMC) International Strategic Planning and Priority Setting Meeting
	Cancer Care/CHOC Cancer Survivors' Summit, His People Church, Goodwood,	10 Sept 2016	Meeting	Cancer Care/CHOC
	20th Annual Controversies and problems in surgery, University of Pretoria	8-9 October 2016	Conference	University of Pretoria
	48th SIOP Congress of the International Society of Paediatric Oncology (SIOP): Dublin, Ireland	19-22 October 2016	Conference	International Society of Paediatric Oncology
	UICC 2016 World Child Cancer Congress, , Paris, France	31 Oct – 2 November 2016	Conference	Union for International Cancer Control (UICC)
	Global focus on bioethics in research (GFBR) meeting, , Buenos Aires, Argentina	3-4 November 2016	Meeting	Global Forum on Bioethics in Research (GFBR)

NAME	COURSES	DATES	TYPE OF	PROVIDER
	ATTENDED		TRAINING	
Lawrenson,J	APLS Course (ADVANCED PAEDIATRIC LIFE SUPPORT COURSE)	4-5 February 2016	Course 2. Conference	Red Cross Hospita
	World Congress of Cardiology, Mexico	4-7 June 2016	Conference	World Congress of Cardiology & Cardiovascular Health
Lloyd,L	Ventilation Workshop	21-22 November 2016	Workshop	
	ISTAN SIM Training	24-25 November 2016	Course	STAN SIM Training
Malek,E	BLS Course, Cardiocare, Plattekloof	8 February 2016	Course	Emergency Care Institue of South Africa, UCT Faculty of Health Sciences.
	35th Conference on Prioties Perintal Care, Warnbaths	8-11 March 2016	Conference	Priorities in Perinatal Care in Southern Africa
	TBH AOP Workshop, Paarl	17 March 2016	Workshop	ТВН АОР
	First 1000 days Road show workshop,Khayelitsha Hospital	18 March 2016	Workshop	Department of Health
	WAIMH Conference, Prague	30 ,31 May , 1- 3th Jun 2016	Conference	World Association for Infant Mental Health
	Child PIP Workshop,Robertson	15 August 2016	Workshop	su
	Community Child Care Workshop	21 November 2016	Workshop	su
	Global Resilience Academy(GRA) workshop,Lentegeur	22-23 November 2016	Workshop	Global Resilience Academy(GRA)
	ECD Programme workshop,Parow	9. 08 Nov 2016	9. Workshop	ECD Programme
Nel,E	Gastroenterology Course	27 January 2016	Course	SU
	Fellow Weekend, Spier	5-7 February 2016	Congress	Gastroenterology Hepatology and Nutrion
	International Conference Pediatric Gastroenterology, Hepatobiliary, Transplant & Nutrition,Gastroenterology Conference India Nims University, Jaipur, India	11-14 February 2016	Congress	Gastroenterology Conference India
	Collaborative Research Workshop, ESPGHAN Conference ,Athens	25-28 May 2016	Congress	European Society for Paediatric Gastroenterology, Hepatology and Nutrition
	GP update, Lord Charles, Somerset West	9 June 2016	Congress	GP
	Postgraduate Course in Paediatric Gastroenterology (SAPA 2016) - organiser Gastroenterology Foundation Meeting	August 2016	Meeting	(SAPA 2016) - Gastroenterology Foundation Meeting
	Sages Course	5-8 August 2016	Congress	Society of American Gastrointestinal and Endoscopic Surgeons
	Gastroenterology Foundation Meeting	27 August 2016	Meeting	Gastroenterology Foundation
	South African Paediatric Association Conference, Durban	31 July - 4 August 2016	Congress	South African Paediatric Association Conference
	Nutrition Conference, Somerset West	5 September 2016	Congress	0. Nutrion Conference Somerset West

NAME	COURSES	DATES	TYPE OF	PROVIDER
	ATTENDED		TRAINING	
	9th International Child TB Training Course, Goudini	22 September 2016	Course	Desmond Tutu TB Centre
	Expert Community Network (ECN) Meeting, Cape Town	24 September 2016	12. Meeting	Expert Community Network (ECN)
	Peadiatric Pulmonology Interest Group Meeting	5 October 2016	Meeting	Peadiatric Pulmonology Interest Group
	World Congress of Paediatric Gastroenterology Hepatology and Nutrion	7 October 2016	Congress	World Congress of Paediatric Gastroenterology Hepatology and Nutrion
Parker, N	Paediatric Registrars Skills Marketplace	9th June 2016		
	SPRINTT PROGRAM	23 August 2017		RED CROSS SKILLS LAB
	Paediatric BASIC	19-20 May 2016		Cape Town
	Saving Young LivesSAVING YOUNG LIVES – RENAL SKILLS WORKSHOP	28 Nov – 1 Dec 2016		Red Cross Children's Hospita – Cape Town, South Africa
Rabie,H	Course, Swaziland	7-9 March 2016	Course	
	APLS Course	11 November 2016	Course	
Redfern,A	APLS Course (ADVANCED PAEDIATRIC LIFE SUPPORT COURSE)	4 February 2016	Course	Red Cross Hospital (VLE)
	ICEM conference , CTICC , Cape Town	18-20 April 2016	Conference	THE INTERNATIONAL CONFERENCE ON EMERGENCY MEDICINE
	APEM Course, Brisbane	8-10 November 2016	Course	APEM Course, Brisbane
Schaaf.S	ECSMID Course Lecture	19 January 2016	Teaching	UCT
	HPTN/IMPAACT Annual Meeting, Arlington, VA, USA	13-17 June 2016,	Meeting	PTN/IMPAACT Annual Meeting, Arlington, VA, USA
	8th International Workshop on HIV Pediatrics and Co- Infection with HIV, Durban, South Africa	15-16 July 2016	Workshop	8th International Workshop on HIV Pediatrics and Co- Infection with HIV. , Durban, South Africa
	The Xth International Child TB Training Course	25-30 September 2016	Course	DTTC/Department of Paediatrics and Child Health
Shires,J	Paediatric Nephrology workshop and Nephrology congress Cape Town.	9-11 Sept.2016	Workshop	Paediatric Nephrology workshop and Nephrology congress Cape Town
Smit,L	SAFRI	1-4 March 2016	Workshop	SU
Smith,J	Here be lungs Congress, Lanzerac ,Stellenbosch	17-18 March 2016	Congress	SU
	SAPA congress, Durban	31 Aug - 3 Sept	Conference	SAPA
Solomons,R	14th International Child Neurology Congress, in	1-5 May 2016	Course	14th International Child Neurology Congress, in
	Amsterdam, the Netherlands PET (Epilepsy) trainer	February 2016	Course	Amsterdam, Netherlands British Paediatric Neurology Association
	The Xth International Child TB	September 2016	Course	DTTC/Department of

NAME	COURSES ATTENDED	DATES	TYPE OF TRAINING	PROVIDER
	Training Course			Paediatrics and Child Health
	SAPA 2016, Durban- session chair	September 2016	Course	South African Paediatric Association
Springer,P	African Doctoral Academy course on Writing and Publishing an Article	12-16 January 2016	Course	SU
	PANDA workshop on Metabolicdisorders and Rare Diseases	May 2016	Workshop	PANDA, Pretoria
Thomas,A	PET (Epilepsy Conference)	February 2016	Conference	
	PANDA Conference on Metabolic conditions	May 2016	Conference	
	1st International Conference on Cerebral Palsy,Stockholme ,Sweden	1-4 June 2016	Conference	The International Conference on Cerebral Palsy and other Childhood
	Griffiths 111 Course Part 2	16-18 November 2016	Course	ARICD
Van Toorn,R	ADA Summer School, Doctoral Supervision Course,Stellenbosch	18-22 January 2016 2	Course	SU
	14th International Child Neurology Congress, in Amsterdam, the Netherlands	1-5 May 2016	Course	14th International Child Neurology Congress, in Amsterdam, Netherlands
Williams,J	Meeting Customer Service Requirements	3 June 2016	Workshop	SU
	MS Outlook 2013 Level 2	3 July 2016	Course	CTU Training Solution
	MS Powerpoint 2013 level 2	10 August 2016	Course	CTU Training Solution
	Office Administration Management	08 September 2016	Course	SU
Yzelle,L	2016 Advanced life support programme	4-5 February 2016	Course	UCT
Zollner,E	SEMDSA	15-17 April 2016	Conference	Society for Endocrinology, Metabolism and Diabetes of South Africa

NAME	COURSES ATTENDED	DATES	ТҮР
			TRAI
Appel,I	 Attended and presented a poster on "Acquired infections in paediatric patients after cardiac care"8th World Congress on Pediatric Intensive Care ,Toronto,Canada Invited speaker and attended the Critical Care Congress of SA, Presentation: Use of Red Blood Cell transfusion in the PICU. Instructor on APLS courses in Durban, Instructor on APLS courses in Cape Town, External examiner at SMU, for VI MBChB exams. 	1. 04 June - 08 Jun 2016 2. Aug 2016 3. Aug 2016 4. September 2016 5. September 2016	1. Confere 2. Confere 3. Instruc 4. Instruc 5. Examin
Bekker,A	1. CME MEETING 2016 2. Child PIP Workshop,Robertson 3. GCP Refresher Course	1. 11 Aug 2016 2. 15 Aug 2016 3. 05 August 2016	1. Course 2. Worksh 3. Course
Beyers,N	1. PopArt Workshop	1. 01 - 05 Feb 2016	1. Worksh

Cotton,M	 PENTA Conference in India Epiitical Meeting in Rome SAIS 5th Conference of the South African Immunology Society JHB Tr@inforPedHIV Course,Tanzania SACORE Conference ,Malawi SAHIVCSOC SOUTHERN AFRICAN HIV CLINICIANS SOCIETY CONFERENCE,JHB Ath Annual Bioethics Seminar on 23 April 2016 in Spier, Stellenbosch CTC Industry Workshop,PTA STOP TB Conference ,Abudja,Nigeria Paeds HIV Workshop and IAS,Vancouver CA Paeds HIV Workshop and IAS, Durban 	1. 26 – 30 January 2. 11-13 February 3. 06 - 09 March 2016 4.10th Mar - 11th Mar 2016 5. 16th Mar- 17 Mar2016 6. 13 April - 16 April 2016 7. 23 April 2016 8. 11 May 2016 9. 17 May - 18May 2016 10. 14 Jul - 15 Jul 2016 11. 18 - 22 Jul 2016	1.Confere 2.Meeting 3.Course 4.Confere 5.Confere 6.Worksh 7. Confere 8. Worksh 9. Confere 10.Works 11. Works
Du Preez,J	1. African Doctoral Academy Summer school(ADA) 2. GCP Course Mother & Infant Health Workshop 3. BARNARDS-study Congress ,Vinyard Hotel	1. 18 Jan - 22 Jan 2016 2. 25 - 26 Jan 2016 3. 25 Jan 2016 4. 17 May - 18 May 2016	1. Worksł 2. Course 3. Worksł 4. Confer
Finlayson,H Fourie,B	1. ECCMID Conference, Amsterdam 1. Prontak Course 2. Intervention Workshop, Red Cross Children`s Hospital 3.Predac Course	1. 09April - 12 April 2016 1. 26 Jan 2016 2. 14 Mar - 18 March 2016 3. 12 Jul 2016 - 13Jul 2016	1. Confer 1. Course 2. Worksk 3. Course
Goussard,P	 1.ADA Summer School, Doctoral Supervision Course, Stellenbosch 2. Here be lungs Congress, Lanrac , Stellenbosch 3. Attended and presented a poster on "The indications and role of paediatric bronchoscopy in a developing country, with high prevalence of pulmonary tuberculosis and HIV" at the Congress on Pediatric Pulmonology XV, Naples, Italy 	1. 18 Jan - 22 Jan 2016 2. 17 - 18 Mar 2016 3.4 – 8 June and 23-26 June 2016	1. Course 2. Confer 3. Congre
Holgate.,S	1. Training at AMS 2. CMSA Examiners Wokshop 3. ECCI Conference, Venice , Italy 4. HREC workshop 5. Ventilation Workshop 6. ISTAN SIM Training	1. 01 Feb 2016 2. 29 March 2016 3. 24th - 26 April 2016 4. 05 Aug 2016 5. 21- 22 Nov 2016 6. 24-25 Nov 2016	1. Course 2. Worksł 3. Confere 4. worksł 5. Worksł 6. Course
lkobah,J	 Fellow Weekend,Spier Gastroenterology Conference India ESPGHAN Conference ,Athens South African Paediatric Association Conference ,Durban 	1. 5 - 7 Feb 2016 2. 11 -14 Feb 2016 3. 25 May - 28May 2016 4. 31 ul - 4 Aug 2016	1. Confere 2. Confere 3. Confere 4. Confere
Kali,G	1. ADA Summer School,Doctoral Supervision Course,Stellenbosch	1. 18 Jan - 22 Jan 2016	1. Course
Kling,S	1. HREC workshop	1. 05 Aug 2016	1. Worksł
Kooblah,Y	1. ADA Summer School	1.18-22 Jan 2016	1.Works

Kruger,M	 How to manage Retinoblastoma in 2016, Barcelona, Spain - Attendance AIDS Malignancy Consortium (AMC) International Strategic Planning and Priority Setting Meeting, Cape Town, South Africa - Attendance CancerCare/CHOC Cancer Survivors' Summit, His People Church, Goodwood, Invited speaker Long time survival in the current South Africa 20th Annual Controversies and problems in surgery, University of Pretoria, Invited speaker Ethics: Is it not time to transplant HIV positive donor organs to HIV negative recipients in the HAART era? – Kruger M, Z Asmal, E Muller, M Slabbert 48th SIOP Congress of the International Society of Paediatric Oncology (SIOP): Dublin, Ireland Session chair:Factors affecting cancer causation and outcome Poster presentation collaborations Treatment of retinoblastoma in low income country setting according to SIOP- PODC guidelines – interim anaylsis – Kruger M, Bardin R, Mbah G, Okwen M, Wharin P, Tambe E, Hesseling P Disease profile and outcome of paediatric cancer in three consecutive periods in Tygerberg Hospital, Cape Town, South Africa – Kruger M, Van zyl A, Nortje R, Uys R, Netshituni V, Madzhia E. Destitution level of children with Burkitt Lymphoma and effect on adherence to treatment and follow-up – Afungchwi GM, Hesseling PB, Kruger M, Kaah J, Wharin P UICC 2016 World Child Cancer Congress, , Paris, France Oral presentation: SIOP – Pediatric and Adolescent perspective for cancer control, diagnosis and treatment: Ethical implications for treatment of children & adolescents in resource constrained countries - Kruger M. Glocal focus on bioethics in research (GFBR) meeting, , Buenos Aires, Argentina Member of the steering committee 	1. 10-11 June 2016 2. 17 July 2016 3. 10 Sept 2016 4. 8-9 October 2016 5. 19-22 October 2016 6. 31 Oct – 2 Nov2016 7. 3-4 November 2016	1. Confere 2. Meeting 3. Confere 5. confere 6. Congres 7. Meeting
Lawrenson,J	1. Instructor, APLS Course(ADVANCED PAEDIATRIC LIFE SUPPORT COURSE) 2. World congress of Cardiology, Mexico	1. 04- 5 Feb 2016 2. 04 Jun - 07 Jun 2016	1. Course 2. Confere
Lloyd,L	1.Ventilation Workshop2. ISTANSIM Training	1. 21 - 22 Nov 2016 3. 24-25 Nov 2016	1. Worksh 2. Course
Malek,E	 BLS Course, Cardiocare, Plattekloof 35th Conference on Prioties Perintal Care, Warnbaths TBH AOP Workshop, Paarl First 1000 days Road show workshop, Khayelitsha Hospital WAIMH Conference, Prague Child PIP Workshop, Robertson Community Child Care Workshop Global Resilience Academy(GRA) workshop, Lentegeur ECD Programme workshop, Parow 9. 	1. 08 Feb 2016 2. 08 Mar - 11 Mar 2016 3. 17 March 2016 4. 18 March 2016 5. 30 ,31 May , 1- 3th Jun 2016 6. 15 Aug 2016 7. 21 Nov 2016 8. 22 - 23 Nov 2016 9. 08 Nov 2016	 Course Confere Worksh Worksh Confere Worksh Worksh Worksh Worksh

Nel,E	 Gastroenterology Course Fellow Weekend,Spier International Conference Pediatric Gastroenterology, Hepatobiliary, Transplant & Nutrition,Gastroenterology Conference India Nims University, Jaipur, India Paper presented: Intestinal disease in the Era of cART. Chairman, Collaborative Research Workshop, ESPGHAN Conference ,Athens GP update ,Lord Charles ,Somerset West Postgraduate Course in Paediatric Gastroenterology (SAPA 2016) - organiser Gastroenterology Foundation Meeting South African Paediatric Association Conference ,Durban Nutrion Conference ,Somerset West,organiser and presenter 9th Intertional Child TB Training Course,Goudini Expert Community Network (ECN) Meeting, Cape Town Peadiatric Pulmonology Interest Group Meeting World Congress of Paediatric Gastroenterology Hepatology and Nutrion 	1. 27 Jan 2016 2. 5 - 7 Feb 2016 3. 11 -14 Feb 2016 4. 25 May - 28May 2016 5. 9 Jun 2016 6. August 2016 7. 5 - 8 Aug 2016 8. 27 Aug 2016 9. 31 ul - 4 Aug 2016 10. 5 Sept 2016 11. 22 Sept 2016 12. 24 Sept 2016 13. 5 Oct 2016 14. 7 Oct 2016	 Course Confere Confere Confere Confere Meeting Confere Meeting Confere Confere Confere Confere Confere Confere Confere Confere Meeting <
Rabie,H	1. Course ,Swaziland	1. 07Mar - 09 Mar 2016	1.Course
Redfern,A	2. APLS Course 1. Instructor, APLS Course(ADVANCED PAEDIATRIC LIFE SUPPORT COURSE) 2. ICEM conference, CTICC, Cape Town 3. APEM Course, Brishane	2. 11 Nov 2016 1. 04 Feb 2016 2. 18 April - 20April 2016 3. 08 Nov - 10 Nov 2016	2. Course 1. Course 2. Confere 3. Course
Schaaf.S	 ECSMID Course Lecture HPTN/IMPAACT Annual Meeting, Arlington, VA, USA - presenter Schaaf HS. Methodological challenges and considerations for MDR-TB treatment trials in children. 2016 HPTN/IMPAACT Annual Meeting, Presenter Schaaf HS. The challenges of drug-resistant tuberculosis in children with HIV. 8th International Workshop on HIV Pediatrics and Co-Infection with HIV. , Durban, South Africa - presenter The Xth International Child TB Training Course was successfully presented by DTTC/Department of Paediatrics and Child Health at Goudini from with 50 participants from 14 countries. This is a SU certificate accredited course Schaaf HS, Seddon JA, Hesseling AC. Designing a MDR-TB injectable sparing regimen in children: research priorities, design considerations and discussion. 2016 	1. 19 Jan 2016 2. 13-17 June 2016, 3. 15-16 July 2016 4. 25-30 September 2016	1. Teachin 2. Meeting 3. Worksho 4. Course
Shires,J	Attended the Paediatric Nephrology workshop and Nephrology congress Cape Town.	1.9-11 Sept.2016	Workshop
Smit,L	1. SAFRI	1. 01 Mar - 04th Mar 2016	1.worksho
Smith,J	1. Here be lungs Congress,Lanrac ,Stellenbosch	1. 17 - 18 Mar 2016	1. Congres
Solomons,R	1. 14th International Child Neurology Congress, in Amsterdam, the Netherlands	1. May 1–5, 2016	1. Course
Springer,P	 Giving a Talk at Oasis Special Care Centre 2. 	1. 25 Jan 2016	1. Course
Thomas,A	 PET (Epilepsy Conference) PANDA Conference on Metabolic conditions 1st International Conference on Cerebral Palsy, Stockholme, Sweden Griffiths 111 Course Part 2 	1. Feb 2016 2. May 2016 3. 01-04 Jun 2016 4. 16 - 18 Nov 2016	1. Confere 2. Confere 3. Confere 4. Course
Van Toorn,R	 ADA Summer School, Doctoral Supervision Course, Stellenbosch 14th International Child Neurology Congress, in Amsterdam, the Netherlands 	1. 18Jan - 22 Jan 2016 2. May 1–5, 2016	1. Course 2. Course

Williams,J	 Meeting Customer Service Requirements MS Outlook 2013 Level 2 Powerpoint 2013 level 2 Office Administration Management 	3. MS	1. 03 Jun 2016 03 Jul 2016 Aug 2016 2016	2. 3. 10 3. 08 Sept	1.Worksho 2. Course 3.Course 4. Course
Yzelle,L	1. 2016 Advanced life support programme		1. 04th - 5th Feb 201	.6	1. Course
Zollner,E	1. SEMDSA		1. 15 April - 17 April	2016	1. Confere

Part 5

CENTRES

THE FAMILY CLINICAL RESEARCH UNIT (FAMCRU)

Director: Prof MF Cotton

Date	Name	Meetings/Conferences	Place
26 – 30 January	Prof Cotton	PENTA Meeting	India
10 – 12 February	Prof Cotton	EPIICAL Meeting	Rome, Italy
6–9 March	Prof Cotton	South African Immunology Society Conference (SAIS)	Gauteng, SA
9–11 March	Prof Cotton	PENTA Meeting	Tanzania
16 – 17 March	Prof Cotton	SACORE Conference	Malawi
13 – 16 April	Prof Cotton	SAHIVSOC Conference	Gauteng, SA
5 – 6 May	Prof Cotton	NIH Meeting: Improving Birth Testing and Linkage to Care for HIV-infected Infants	Rockville, Maryland
17 – 18 May	Prof Cotton	STOP TB Conference	Nigeria
12 – 17 June	Prof Cotton	IMPAACT Annual Meeting - Member of the primary therapy study group	Washington DC, USA
26 – 30 June	Prof Cotton	Annual AIDS Clinical Trials Group Network Meeting	Washington DC, USA
17 July	Prof Cotton	2 nd HEU Workshop Organizer and session Chairman	Durban, SA
18 – 19 July	Prof Cotton	 8th International Workshop on HIV Pediatrics Member of international organizing committee Chair to session: Management of Pediatric HIV 	
19 – 23 July	Prof Cotton	 IAS Conference – 7th International workshop on Pediatric HIV Session Chair: Young adults with perinatal HIV infection workshop 	Durban, SA

1 – 4	Prof	South African Pediatric Association	Durban, SA
September	Cotton	Conference	
7 October	Prof Cotton	Clinical Pharmacology Session	Gauteng, SA
26 – 30	Prof	ID Week	New Orleans,
October	Cotton		USA
7 – 8	Prof	Viiv Board Meeting	London, UK
November	Cotton	HIV and neurodevelopment workshop	
3 December	Prof Cotton	7 th Child Health Priorities Conference	Cape Town, SA
5 – 7	Prof	WHO - Paediatric ARV Drug Optimization	Geneva
December	Cotton	Meeting (PADO 3)	

Ongoing Research Support:

NIH 5U01Al069521-10 Stellenbosch University Clinical Trial Unit – IMPAACT projects. The major goal is to conduct HIV clinical trials funded through IMPAACT. No overlap with other projects	12/01/2015 – 11/30/2016 \$1,032,117	4.2 calendar
USAID 674-A-12-00031 HIV-Innovations for Improved Patient Outcomes in South Africa. The Major goal: Developing and Institutionalizing an Innovative Capacity Building Model to Support South African government Priorities and to Improve HIV/TB Health Outcomes for Priority Populations. No overlap with other projects	10/17/2012 – 09/30/2017 \$14,999,432	0.60 calendar
1RO1MH105134-03 Latent reservoir characterization and correlation with neurocognitive function – major goal is to describe latent HIV reservoir in children from the CHER trial and to correlate with neurocognitive outcomes and thymic output. No overlap with other projects	07/09/2016 – 06/30/2017 \$562,870	1.2 calendar
1U01CA200441-02 Characterizing HIV-1 diversity, evolution, and integration sites in children initiating cART in early infection. No overlap with other projects	05/01/2016 – 04/30/2017 \$157,220	0.6 calendar

Data Management Plan

IMPAACT:	99 %
ACTG:	95.4%

Very well done to the entire FAMCRU IMPAACT/ACTG team for keeping our data management scores high!

Special thanks to the data team for the extra effort they put in to follow up queries and managing the data within the strict timelines.

2016 Awards and Accomplishments

1. Prof Cotton – Appointment Board Member at the South African Medical Research Council – November 2016.

International Visitors

1. Swedish delegation from Karolinska 12 – 14 April

Training and Development

Weekly teachings and presentations are being held on different work related aspects and guest speakers have been invited. This can be viewed on G:\PERSONEEL\PEDIAT\KIDCRU\Training\Weekly training\Weekly training\Teaching

SOUTH2SOUTH PROGRAMME FOR COMPREHENSIVE FAMILY HIV CARE & TREATMENT

Director: Dr IO Oluwatimilehin

This report was compiled by Ms C du Toit, Operations Director

Summary of activities:

2016 was the penultimate year of the PEPFAR/USAID Cooperative Agreement No. AID-674-A-12-00031; HIV-Innovations for Improved Patient Outcomes in South Africa for the South to South Programme (hereafter S2S). This cooperative agreement ends on 30 September 2017.

S2S is currently implementing an innovative capacity building programme and intervention that addresses capacity building at different levels of the health system in South Africa with the overall goal of improving maternal and child HIV/TB health outcomes. The S2S capacity building model is an integrated and multi-level intervention aimed at improving the capacity of individuals, organisation and systems of the National Department of Health (hereafter NDoH) to implement, scale up, and institutionalize innovations to improve patient outcomes of key populations.

Key features of the multi-level S2S capacity building programme are: (1) activities at an individual health worker level, (2) programme activities at an organisational level and (3) programme activities at a systems or policy level. Individual level capacity building activities are aimed at the individual health care worker. Organisational level capacity building activities are aimed at supporting health facilities, cluster of facilities, district/sub-district multidisciplinary teams, provincial regional training centres, Master Trainer networks. At a systems or policy level, S2S programme activities are targeted at attendance and responding to requests from NDoH such as to participate in technical working groups and supporting the Human Resources Directorate.

In 2016, S2S implemented the rapid scale-up phase of the Quality Improvement (hereafter QI) Collaboratives in 112 health facilities in four Sub-districts of the Amatole District, Eastern Cape Province. This led to the establishment of four subdistrict level learning Networks with each consisting of a multidisciplinary team from supported and non-supported facilities as well as the 112 facility-based QI Teams. S2S in collaboration with the Eastern Cape (EC) Regional Training Centre (RTC) conducted the Paediatrics Master Trainer network and the Advanced Quality Improvement Courses. In addition, S2S conducted trainings for Lay Counsellors, Enrolled nurses and Ward-Based Outreach Teams drawn from 40 facilities; and provided intensified coaching and mentoring to facility staff to improve the Paediatric 90-90-90 tracer indicators by supporting community-facility linkages. S2S conducted an Implementation Science Workshop with 60 participants in attendance drawn from District DoH, Implementation Partners, Academia and USAID. District DoH presented three posters at the workshop. Focus group discussions were conducted for the competency dictionaries development by the S2S Strategic Information unit as well as the writing workshop.

Most activities in the workplan were successfully implemented as scheduled except for challenges experienced in standardization of the Integrated management of childhood illness (hereafter IMCI) curriculum due to poor buy-in by the NDoH contact person. In some cases, there were delays in program implementation occasioned by unscheduled holidays.

Progress to PEPFAR Targets:

S2S provided technical assistance for service delivery improvement in the prevention of mother to child transmission (hereafter PMTCT) programme areas in the Amathole District, Eastern Cape Province, through the scale up of the S2S Elimination of mother-to-child transmission (hereafter eMTCT) and IMCI QI Collaboratives. S2S supported 112 facilities in all four sub-districts of the Amathole District. The QI is comprised of learning sessions followed by action periods focusing on improving key PMTCT/IMCI, and Paediatric care and Support the treatment and care pathway. In addition to this S2S also conducted 1-2 hour need based facility training in supported facilities. The Train the Trainer course conducted by S2S for DoH Trainers and Implementing partners to support Management of Paediatrics, Adolescents HIV/AIDS and PMTCT and ensure sustainability of all capacity building activities complements this.

During 2016, S2S were allocated PMTCT facility level targets as an Innovations implementing partner. Table 1 summarises the PMTCT annual targets against results for the supported District.

Annual Target (Total)	% of annual target achieved	Comments / Analysis
PMTCT_STAT Numerator (N) (14125)	75%	S2S implemented the scale up phase Of the QI Collaboratives in April 2016. Facility support in the Amathole District were scaled
PMTCT_STAT Denominator (14413)	60%	up from 14 to 112.
PMTCT_ART Numerator (2737)	97%	
PMTCT_EID Numerator (2737)	78%	

Source: DATIM FY2016 MER Results

• PMTCT_STAT Numerator: This target refers to the Number of pregnant women who were tested for HIV and know their results plus Number of pregnant women with known HIV status at entry to services. S2S has achieved a 75% achievement of the target set by PEPFAR for the facilities supported.

- PMTCT_STAT Denominator: This target refers to Number of new antenatal (ANC) and Labour and Delivery (L&D) clients. S2S achieved 60% of the set target by PEPFAR.
- PMTCT_ART Numerator: This target refers to the Number of HIV positive pregnant women who receive antiretroviral (ARV's) to reduce risk of motherto-child-transmission during pregnancy. S2S achieved 97% of target received by PEPFAR.
- PMTCT_EID Numerator: this target refers to Number of infants who had a virological HIV test within 12 months of birth during the reporting period. S2S achieved 78% of target set by PEPFAR.

Technical assistance dashboard

S2S provided technical assistance to various health system structures and levels in the Eastern Cape Province including the RTCs, District Clinical Specialist Teams, subdistrict- and health facilities. Activities conducted also comprised conducting modular, needs based training and mentorship, facilitating district learning QI networks and facilitating the Paediatric and adolescent Care Master Trainer Course. Table 2 summarises S2S technical assistance coverage for FY2016.

Technical Assistance Type	Technical Assistance Output Indicator	Total targeted sites/districts (per indicator)	Disaggregates	Annual Total
	Number of staff trained as Trainers on the Paediatric and	8 districts	Staff completing the course	52
	Adolescent HIV and TB Management ToT course		Number of districts	8
Training	Number of staff trained in Paediatric and Adolescent HIV and TB	8 districts	Staff completing the course	147
	Management by DoH trainers with the support of S2S		Number of districts	8
	Number of staff trained in QI coaching	1 district, 4 sub-districts	Staff currently on the course	17
			Number of sub- districts	4
Mentoring	Number of staff	1 District, 112	Staff mentored	43
	mentored Paediatric and Adolescent HIV course	Health Facilities	Number of facilities	0
Mentoring/ organizational	Number of districts/facilities	1 District, 112 Health	Number of Facilities	112
	receiving documented mentoring assistance with follow-up action plans by technical area	Facilities	Number of districts	1

Quality Improvement of Services	Number of districts/facilities supported to implement	1 District, 112 Health Facilities	Number of Facilities Number of	112
	QI activities by technical area		districts	1
Clinical Quality	Clinical Quality	Total	Disaggregates	Annual
Programme	Capacity Outcome	targeted		Total
Areas	Indicator	sites/districts (per		
		indicator)		
Quality	Number of districts/sites	1 District, 112	Number of Sites	112
Improvement	with quality	Health	Number of	1
Capacity	improvement activities implemented that	Facilities	districts	
	address clinical HIV			
	program processes or outcomes and have			
	documented results			

District Work Plan

In 2016 S2S expanded the program into facilities previously not selected in Mnquma sub-district where the program was already in progress. Additionally, new facilities in the other three sub-districts (Mbashe, Nkonkobe and Amahlathi) were added for the rapid scale up phase. By September 2016 we have covered a total of 28 facilities in Mnquma consisting of new and previously selected facilities, 28 new facilities in Mbashe, 28 new facilities in Nkonkobe and 28 new facilities in Amahlathi. The main aim of the rapid scale up phase was to define conditions under which the eMTCT QI collaborative is most effective during scale-up.

As a result, the following targeting strategies were used to select facilities to be included in the rapid scale up phase: Burden of disease high burden/high volume vs low burden/low burden, Facility type (Hospital vs CHC of PHC Clinic), Sociodemographic (Rural vs Urban location). The distinguishing characteristics of the rapid scale up phase has been the comparative nature of the effectiveness of the QI approach to eMTCT using the Urban/Rural location, Hospital/PHC facility type and the High volume /low volume sites, presence/absence of a hospital in the supported facility cluster.

In expanding program coverage through the rapid scale up process, the following achievements stand out:

- S2S had established 112 QI Teams in the targeted facilities across the 4 subdistricts
- Each facility QI Team had an elected Team Lead from amongst the constituted team
- S2S Technical Advisors conducted QI coaching with each one of the 112 QI Teams
- As part of the Learning Network established through the rapid scale up process; two Learning Sessions were held for facilities to share best practices; namely, Learning Session 2 in July and Learning Session 3 in September

- All maternal District Implementation Plan (hereafter DIP) PMCT 90 90 90 tracer indicators have been rolled out in the selected 112 facilities
- A Community Health Worker (hereafter CHW) training was conducted for Lay Counsellors and CHW in selected facilities
- High level of buy-in was achieved into the QI Collaborative process in the Eastern Cape in general and the Amathole District management in particular

Amathole District PMTCT Cascade

There were 8595 total number of antenatal clients and 8481 (99%) tested for HIV. In addition, out of a total of 2710 positive antenatal clients, 2682 (99%) were initiated on treatment.

Progress to Targets under the first 90

From January to March the S2S program focused on the establishment of Facility based QI Teams. 112 QI Teams were established with 112 Facility based QI Team Leads in the four Sub districts. The 1st quarter ended by holding the 1st Learning Session which marked the establishment of 4 Sub district Learning Networks characterized by the roll out of the first set of indicators in the PMTCT and Paediatric cascade:

- Antenatal first visit before 20 weeks,
- HIV counselling and testing rates,
- HIV re-testing of pregnant women,
- Infant first PCR test positive at birth,
- Infant rapid HIV test around 18-month uptake,
- Couple year protection rate,
- Infant HIV prophylaxis,
- Exclusive breastfeeding

Progress to Targets under the second 90

From April to June the S2S program focused on continuing with the coaching of 112 QI Teams, 112 Facility based QI Team Leads and 27 Sub district managers in the 4 Sub districts on QI Methodology. The 2nd quarter ended by holding the 2nd Learning Session characterized by the roll out of the second set of indicators in the PMTCT and Paediatrics cascade:

- HIV retesting rate in pregnancy,
- Positive antenatal client receiving ART,
- Antenatal client initiated on ART,
- Mother postnatal visit within 6 days,
- Infant first PCR test positive at birth,
- Couple year protection

At the 2nd Learning Session three facilities from each sub district presented QI projects to showcase the improvements in selected indicators. The following are highlights of some of the presentations made by the facilities:

Clinic Name:	Indicator:	Observed Improvements:
Nyhwara Clinic	1 st ANC Booking < 20 weeks	34% Increase from Baseline
Butterworth Hospital	Birth PCR	85% Increase from Baseline

Komga Clinic	1 st ANC Booking < 20 weeks	40% Increase from Baseline
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Progress to targets under third 90 (PMTCT and Paediatrics)

In Quarter 3 the S2S program focused on coaching the 112 QI Teams, 112 Facility based QI Team Leads and 27 Sub district managers in the 4 Sub districts on QI Methodology; the 3rd quarter ended by holding the 3rd Learning Session characterized by the roll out indicators in the paediatrics cascade:

- First clinic visit <6 days, linking mother/baby pair,
- HIV test positive child 19-59 months,
- HIV test positive child 5-14 years,
- Child under 1 year naïve started ART,
- Child 12-59 months naïve started ART,
- Child 5-14 years naïve started ART,
- Child under 15 years remaining on ART total

All 112 facilities were ready and prepared to present QI projects to showcase the improvements in selected indicators. The following are highlights of some of the presentations made by the facilities:

Clinic Name:	Indicator:	Observed Improvements:
Nompumelelo Gateway	Viral load suppression 0-15 years	5% Increase from Baseline
Victoria Gateway	Viral load done 0 – 15 years	40% Increase from Baseline
Victoria Gateway	Children remaining on ART 0 - 15 vears	40% Increase from Baseline

Human Resources for Health and Health Systems Strengthening (Crosscutting):

Service Delivery:

A CHW Forum Workshop, where 40 lay counsellors and 40 CHWs were trained, was thus rolled out in 40 high volume Amathole District facilities consisting of 10 Facilities in each of the four sub districts. The following criteria were utilized to characterize high volume site for the targeted intensive improvements on poor performing paediatric HIV DIP indicators:

- Total number of pregnant women for antenatal 1st visit total to estimate the projected number of children eligible for health services in each facility high volume facility predictor
- Total number of children receiving Hex 1st dose to estimate number of children who have received a service in the health facility – to estimate volumes in the facility
- Live births to HIV positive women to identify the number of HIV exposed children who will be used as index cases to identify un-serviced exposed siblings to estimate disease burdens in the facility

Health workforce:

Integrated IMCI Training

The integrated course trained CHWs, Lay counsellors and Enrolled Nurses. It integrated clinical topics with QI topics. Two courses were held, one for the Mnquma and Mbashe sub-districts and the other for the Amahlathi and Nkonkobe sub-districts. 117 healthcare workers were trained. Clinical topics included treatment of paediatric HIV, IMCI, TB management and breastfeeding. Adherence and disclosure were also discussed. The QI approach was covered and the participants had the opportunity to practice using tools such as the fishbone and process map.

Paediatric Master Trainer Network

Close Collaboration with the RTC continued throughout 2016. The RTC has endorsed the S2S Paediatric and Adolescent HIV and TB Management Train the Trainer Programme. It is currently the only course on Paediatric HIV which has permission to train in the Eastern Cape. The RTC identified the participants to be trained as trainers. The trainers were required to do their training skills assessment in a geographical area identified as priority by the RTC. These assessment trainings were funded by the RTC and the S2S participants facilitating them were mentored to organize them in collaboration with the RTC. This was done to support the provincial training systems and build relationships between the trainers and RTC for sustainability of training.

Three Paediatric and Adolescent HIV and TB Management 5-day courses were in progress at the beginning of 2016. Two of them were completed during 2016 with the assessment of the participant training skills. The third group could not complete their as planned as the final assessment had to be postponed to accommodate the voting day. The following activities were conducted for each course:

Course:	Clinical Component:	Train the Trainer Component:
Paediatric ToT Course 1	Completed 2015	17 participants trained 60 nurses and doctors as assessment of their training skills
Paediatric ToT Course 2	Completed 2015	16 participants attended 1 planning workshop to prepare for their assessment 16 participants trained 60 nurses and doctors as assessment of their training skills
Paediatric ToT Course 3	18 participants joined 1 conference call 18 participants attended 1 group mentoring session	18 participants attended a 2-day session on course development skills

The Train the Trainer component underwent an intensive revision after the first group completed it. While the content remained the same, the training methodology used during the course by S2S was changed from lecture style to interactive workshopping. This was done to model the training methodology we would like to see the participants use. This new methodology resulted in a marked difference in the way participants trained during their assessments. Instead of giving the S2S presentations to the participants as the previous group had done, the participants designed their own interactive learning activities to supplement slides which they developed themselves. This resulted in a training which was better tailored to the local context, which was practical and interesting. Quality was maintained through supervision by the S2S trainers. Some of the learning activities created by the participants will be integrated in to the S2S course going forward.

The WhatsApp groups and Conference Calls were appreciated by the participants. While the content of the WhatsApp group has not contained as many clinical discussions as anticipated, the participants have used them to support each other in their work and personal lives. During the courses the S2S facilitators initiated contact on a weekly basis. Communication through the groups has continued beyond the completion of the course, although these discussions have generally been initiated by the S2S facilitators and not the participants.

One research project on the course was completed. The title of the research project was "participants' experience and perceptions in applying their learning about paediatric HIV and TB". Five themes were identified during the research:

- 1. Learner context: The participants found the content to be relevant and useful in their contexts, which varied from supervision of several facilities to clinic work and mentoring.
- 2. Technology as a teaching medium: The conference call gave the participants opportunities to ask questions and the WhatsApp group helped them to stay in contact and support one another.
- 3. Professional growth enabling application: The participants identified how their practice had changed during the course and started applying the content as soon as they completed the first contact session.
- 4. Community of learning: The community of learning provided a feeling of support and not having to face challenges alone.
- 5. Learning beyond the clinical context: The participants broadened their understanding of what was required to adequately treat Paediatric HIV clients and appreciated the role model provided by the S2S facilitators, intending to emulate them in their own practice.

Despite the challenges of workload and lack of access to technology, the course design did answer to the educational needs of the group. The course was experienced as being transformative, deep learning took place and an ongoing community of practice was created. With adaptations, the blended learning model was useful and translated into our context.

QI Master Trainer Network

The first Advanced QI course was facilitated in collaboration with the District NDoH. It was decided to situate the course within the district rather than RTC systems as the RTC focusses on clinical training and the district on systems training. As the district role is more supervision and mentoring than training, we were unable to make the course a train the trainer course as originally planned. Rather we focussed on training managers and supervisors to coach their staff through implementing QI methodology in the facilities they manage. 14 Operational Managers and 3 Registered Nurses started the course. Completion of the course was delayed as a result of the voting day. The following activities have thus far been facilitated as part of the course:

- 1 x 5-day classroom session covering QI methodology and theory.
- 11 x telephonic coaching sessions to support participants to set up a QI project across their facilities.
- 1 x 1 hour conference call allowing participants to share their QI projects with each other and receive feedback.
- Daily contact via WhatsApp.

The participants have each started a QI project within their context. The following projects were chosen by the participants after looking at the data:

Indicator:	Number of Projects:	
Child < yrs commenced on ART	2 projects	
ANC 1 st visit before 20 weeks	4 projects	
HCT coverage 15 – 49 years	2 projects	
TB screening rate	5 projects	
ANC retesting rate	1 project	
Couple year protection rate	1 project	
Uptake 18-month HIV testing	1 project	
Infant EBF at Hep 3	1 project	

The participants whose facilities are part of the S2S Learning Collaborative were encouraged to choose projects to fit in with the work they are doing as part of the collaborative and to become more involved in that process. One participant commented via WhatsApp about how she had managed to use her learning on the course to support her team to implement what they had learnt at the learning session: "Tnx very much for your support. My facility presented very well last month due to your support......your training came at a right time; why the champions were recently trained so there were some gaps in implementation so they needed coaches who are powerful with info to drive them in a right track so now I am confident and have insight of how to coach and be supportive for our success".

Strategic Information:

Competency dictionaries for frontline health care workers

Through the health system strengthening work, the S2S programme supports relevant old and new policy initiatives that have been introduced to strengthen the South African health system such as (1) Re-engineering of Primary Health Care, (2) National Health Insurance, (3) Ideal clinic initiatives, and (4) NDOHs 90-90-90 just to mention a few. This ever-changing policy and implementation context for the health system has implications for competencies required as well as training of health workers. During 2016, S2S has been in the process of developing a comprehensive list of competencies through a training and performance needs assessment for frontline health care workers. The competency dictionaries are focused on HIV/TB services, prevention of mother-to-child transmission of HIV; and paediatric and adolescent HIV/TB treatment.

Planned activities for 2016 included conducting focus group discussion with frontline health workers and getting input and buy-in from the District Management on the draft competencies. Stakeholder engagement and buy-in meetings were conducted successfully in all the provinces at the beginning of the year (2016). Subsequently, a total of 12 focus group discussion out of the targeted 18 have been completed for phase 1 in all three participating provinces. The following is a summary of perceptions of training needs for different health workers providing HIV/TB services at the frontline:

- 1. Training for new policies and guidelines is a need across all cadres and in all three provinces.
- 2. Doctors: Current performance areas of focus vary by district and province. This has implications for capacity building requirements for HIV/TB services training providers.
- 3. Registered Nurses: Role description similar across contexts. Managing HIV/TB co-infection, leadership and customer care training in addition to technical and programmatic training seen as key skills in need of capacitation.
- 4. Pharmacists: Stock and cold chain management capacitation was highlighted as great need, including systems training in profession.
- 5. Facility Managers: Highlighted a lot of burden in conflict management in their roles. Groups expressed need for leadership and management training, financial management, and project management capacitation. In addition to programmatic focussed training.
- 6. Community Based Workers: a high burden of task in their role; expressed need to HIV/TB knowledge training, counselling skills, HIV testing and psychosocial and palliative care delivery skills. Groups also highlighted resource needs and issues.
- 7. Lay Counsellors: Highlighted the need for update in counselling skills including handling mentally ill, managing stress and burnout, and NIDS data capture systems training.

Key Operational Research in Programme Areas:

During 2016, S2S conducted various inter-disciplinary research on training and mentoring, to improve Maternal and Child Health programmes through implementation science and education research approaches. Two S2S staff members completed Master Degree research projects based on capacity building projects being implemented by S2S.

- 1. The clinician's experiences of a simulated ART adherence exercise: A qualitative study.
- 2. Learning about paediatric HIV and TB exploring participant's experience and perceptions to apply what they learned in a blended learning course.

Both projects were completed in September 2016 and the staff members will be completing their Masters Degrees.

Evaluation of Collaboratives (EMTCT & IMCI Collaboratives)

S2S has been conducting an overall process and summative programme evaluation study to describe the processes and impact of the S2S projects under Cooperative Agreement No. AID-674-A-12-00031. During 2016, the project launched the scale-up phase. At scale-up, 112 facilities started receiving support from S2S and these facilities were the focus of evaluation activities during the 2016. There were two data collection activities that were required for data collection at baseline of the scale-up phase of the project:

- 1. Baseline interviews for QI Maturity Surveys: A samples of at least 2 health workers surveys was required for all the scale-up facilities. A total of 236 QI Maturity Surveys were conducted with health workers at the 112 scale-up facilities in Amathole District in the Eastern Cape.
- 2. Baseline site assessment forms were required to be completed for 112 scaleup facilities to collect information of the health facility profiles. A total of 112 site assessment forms was completed.

No major challenges were encountered during data collection and the study is on course of being completed successfully. No adverse events were reported for the data collection period.

Positives outcomes from the QI Collaboratives

In the pilot and demonstration phase of the project, we observed marked regional variation in improvement for early booking rates in 2 out of 3 provinces (24 % in the Eastern Cape; p< .001; 4% in the Western Cape). All sites improved antenatal HIV retest rates (Eastern Cape 31%; p< .001; 11% in the Northern Cape 11%; p< .001; Western Cape 74%; p< .001). Postnatal visit within 6 days' rates improved (varying from 6%-15% in supported provinces). Exclusive breastfeeding rates improved (28% increase in the Eastern Cape; p< .001, 15%; in the Northern Cape; p< .001, 12% in the Western Cape; p< .001). The 18-month rapid test uptake rates improved for all provinces (Eastern Cape 28%; p< 0.001, Northern Cape 20%; p< 001 and Western Cape 25%; p< 001). Factors influencing performance were baseline rates, facility type and size, QI skills, leadership and buy in for QI. The collaborative approach achieved rapid improvements in eMTCT program outcomes in a wide range of facilities across South Africa. Performance variability may be attributed to contextual, organizational and system factors.

National Work Plan Activities:

Support national and provincial human resource development

The project to review the IMCI curriculum for undergraduate nurses with a view to standardization was stalled earlier this year when NDoH stopped responding to emails and answering calls. It was later discovered that the IMCI representative at NDoH had changed. In consultation with the new IMCI coordinator at NDoH it was decided that this project would not continue. The project concept had never been presented by the initial coordinator to the relevant NDoH director for approval and it is not feasible to start at the conceptual phase again at this point in the funding

cycle. It is recommended that the project be included in future funding opportunities.

Conduct improvement science research and education research

S2S supported implementation science projects with DOH and PEPFAR partners to support achievement and documentation of 90 90 90 best practices and innovations.

Implementation science workshop

S2S conducted the 3rd Implementation science workshop in Cape Town from 6 – 8 September 2016. The theme of the workshop was: "Prioritising key maternal and child health 90-90-90 targets into action: The role of implementation science". Specific objectives of the workshop were: (1) To capacitate districts stakeholders to use QI approaches as an implementation science approach, to ensure effective implementation of district and programme priorities (focussing on maternal and child in the context of HIV/AIDS); (2) To clarify the extent, nature of district and subdistrict level cause of service level bottlenecks for PMTCT and paediatrics and adolescent services; (3) To share best practices and interventions across context to ensure effective responses for maternal and child health services; and (4) To identify and share strategies for sustaining QI projects over time to ensure continuous improvement for maternal and child health services.

The workshop was targeted at district health management teams, provincial level maternal and child health managers, district information management teams, PEPFAR implementing partners, facility managers and QI leaders. Seventy-three delegates attended from DoH in the Eastern Cape, Northern Cape, Western Cape and PEPFAR partners.

Writing workshop and research outputs

To promote the identification and evaluation of innovations to establish best practices for institutionalisation of capacity building approaches, S2S staff as well as Department of Health (DOH) staff have co-published work on-going operational research, programme evaluation research, in order to write-up of best practices and proven interventions. From 25 – 27 July 2016 S2S conducted a writing workshop with both S2S and DoH stakeholders.

Summary of 2016 research outputs:

Papers submitted to peer review journals in 2016

- 1. Engelbrecht, J., Skinner, D., Mukinda, F., & Green, B. (Submitted, under review). The clinician's experiences of a simulated ART adherence exercise: A qualitative study. Journal articled submitted to Medical Education Online.
- 2. Engelbrecht, J. Letsoalo, M. & Chirowodza, A. (Submitted, under review). Homebased care study. Journal article submitted to the BMC Health System.

Conference Papers presented in 2016

- Chirowodza, A; Williams, D; Diergaardt, D; Adetokunboh, O; Gede, S; Gobodo, N; Makeleni, N; Tuswa, N; Eckard, M; O'rie T; Shingwenyana, N; Green, B & Oluwatimilehin, I. (2016). The effectiveness of a quality improvement collaborative to accelerate elimination of mother-to-child transmission (eMTCT): Key outcomes and determinants from a demonstration phase collaborative implemented in South Africa, 2012 – 2015. Poster discussion paper presented at the 21st International AIDS Conference, 18th – 22nd July 2016, Durban, South Africa.
- 2. Geiger, J & Green, B. (2016). Learning about paediatric HIV and TB exploring participant's experience and perceptions to apply what they learned in a blended learning course. Oral presentation at the SAAHE conference, 22-24 June, 2016, Port Elizabeth, South Africa.
- 3. Goosen, C., Geiger, J & Schubl, C. (2016. Empower us! Change ideas for improving exclusive breastfeeding rates. Oral presentation at the 18th International Society for Research in Human Milk and Lactation (ISRHML) conference in Breastfeeding Medicine, 03-07 March 2016, Stellenbosch.
- Engelbrecht, J., Green, B., Skinner, D. & Mukinda, F. (2016). The clinician's experiences of a simulated ART adherence exercise: A qualitative study. Poster presentation at the 60th Annual Academic Day, Stellenbosch University, 11 August 2016, Tygerberg campus, Stellenbosch University, Tygerberg, Cape Town, South Africa.
- Green, B., Chirowodza, A., Shingwenyana, N. & Oluwatimilehin, I. (2016. Strengthening Communities of Practice amongst stakeholders working towards the Prevention of Mother-to-Child Transmission (PMTCT) in Amathole District. Electronic poster presentation at the PHASA conference, East London, 19-22 September 2016, South Africa.
- 6. Shingwenyana, N., Chirowodza, A., Green, B., & Oluwatimilehin, I. (2016). The effectiveness of a quality improvement collaborative to accelerate elimination of mother-to-child transmission (eMTCT): Key outcomes and determinants from a demonstration phase collaborative implemented in the Eastern Cape, 2012 2015. Oral presentation at the Stellenbosch University Annual Academic Day Conference, 11 August 2016, Tygerberg campus, Stellenbosch University, Tygerberg, Cape Town, South Africa.
- Mzileni, N., Mpepo, S., Williams, D., Arendse, N. Adetokunboh, O., Gobodo, N., Makeleni, N., Tuswa, N., Gede, S., Chirowodza, A., Shingwenyana, N., Green, B. & Oluwatimilehin, I. (2016). Using quality improvement methods to improve uptake of 18-month HIV Exposed Infant (HEI) testing rate in Mnquma Subdistrict, Amatole District, Eastern Cape Province, South Africa. Oral presentation at the 3rd South to South Implementation Science Research Workshop Poster Presentation, 7-9 September 2016 Durbanville, Cape Town, South Africa.
- Swarts, A.L., Wawini, L., O'rie, T., Johnstone, W., Williams, M., Gunst, C., Liebenberg, H., Arendse, N., Diergaardt, C., Chirowodza, A., Shingwenyana, N., Green, B. & Oluwatimilehin, I. (2016). Using quality improvement methods to improve uptake of 18-month HIV Exposed Infant (HEI) testing rate in Mnquma Sub-district, Amatole District, Eastern Cape Province, South Africa. Oral presentation at the 3rd South to South Implementation Science Research

Workshop. Poster Presentation, 7-9 September 2016, Durbanville, Cape Town, South Africa.

 S.J. Gous, S.J., Koekemoer, H., Arendse, N., Chirowodza, A., Shingwenyana, N., Green, B. & Oluwatimilehin, I. (2016). Outcome evaluation of the Early Ante-Natal Booking < 20/52 using Quality Improvement Methods at a Primary Health Care Facility in Siyancuma, Northern Cape. Oral presentation at the 3rd South to South Implementation Science Research Workshop Poster Presentation, 7-9 September 2016, Durbanville, Cape Town, South Africa.

Technical assistance request from NDOH Technical working groups:

Paediatric TWG

No Paediatric Technical Working group meetings were called by NDoH in 2016. There has been no response from NDoH to requests for information on the future of the meetings.

PMTCT TWG

S2S participated in three PMTCT TWG meetings, the first meeting was scheduled to review DIPs from selected districts out of the 52 districts across the whole of South Africa, as a follow up to this meeting S2S assisted the NDoH in reviewing over 10 DIPs from districts other than Amathole.

The second TWG attended focused on change in the PMTCT guidelines, including birth PCR, universal test and treat amongst others. Follow up activities from S2S was to comment on the practicality of the changed guidelines as well as alignment of changes in the guidelines with DHIS to allow for uniform data collection and standardized calculation of the indicator

The third meeting focused on steps by NDoH towards achieving the last mile in the eMTCT of HIV.

Implementation Science TWG

S2S supported the National Implementation Science technical working group in 2016 by participating, sharing 90 90 90 best practices and contributing to NdoHs and PEPFAR's implementation science agenda. S2S attended and participated in one Implementation Science TWG that focussed on: South Africa HIV/TB implementation research advisory committee: Research Agenda Workshop. The objective of the workshop was to refine and endorse HIV/TB research questions that had been in draft during the previous workshops. There were no other technical working groups held during FY2016.

Responding to technical assistance request to District TWGs:

HR Platforms (Training platforms)

The Eastern Cape RTC did not call any training meetings in 2016. Check in meetings were arranged between the head of the RTC and S2S to ensure that the S2S training programme remained aligned with the Provincial DoH priorities.

Adhoc technical assistance request from stakeholders

Two requests were received from the Eastern Cape this quarter:

- 1. Paediatric ART training for district managers. This request was integrated in the Paediatric Master trainer programmes, where it will be trained by the new trainers under S2S supervision as their assessment.
- 2. Assistance in monitoring the disposal of Hepatitis B vaccines. S2S QI coached assisted by ensuring that the vaccines were removed from the fridges and quarantined, following up to ensure that they had been sent to the province for disposal.

District Implementation Plans Progress and Next Steps

S2S contributed to the joint Provincial and Partner District Implementation Plans Development meetings. S2S Technical Advisors assisted facilities in identifying, analysing and prioritization which of the DIP poor performing indicators to be included in the Sub District and finally consolidated into an Amathole DIP. Next steps would be to finalize incorporation of the S2S QI inputs as part of the Amathole DIP to reflect the budgetary requirements for maintaining and sustaining the established Learning Network for the S2S Ied QI Collaboratives in Amathole District and the Eastern Cape Province, as well as provide a blue print for scale up into other Districts.

Resources:

All positions are funded 100% by PEPFAR/USAID funds through Cooperative Agreement No. AID-674-A-12-00031; HIV-Innovations for Improved Patient Outcomes in South Africa.

Posts (Full time)	Number	Filled
Principal Investigator (10% FTE)	1	Y
Clinical Programme Director	1	Y
Operations Director	1	Y
Programme Manager: Health Programmes	1	Y
Programme Manager: Learning Support	1	Υ
Programme Manager: Strategic Information	1	Υ
Administrative Assistant	1	Υ
Travel and Logistics Coordinator	2	Y
Financial Officer	1	Y
Administrative Officer	2	Υ
Programme Assistant	1	Y
Programme Data Officer	1	Y
Data Capturer	1	Y
M&E Officer	1	Y
Strategic Information Officer	1	Y
Research Assistant	3	Υ
Clinical Advisor	4	Y-2
		N-2
Nurse Advisor	4	Y

Nurse Advisor Training	3	Y
Training Designer	2	Y
APS Advisor	4	Y
Pharmacy Advisor	2	Y

New equipment:

- 10 Dell Latitude E7440 Laptops
- 3 HP MFP M477 Printers

Partnerships:

1. South African Government:

S2S have ethical approval from the provincial government structures to conduct research:

- Western Cape Department of Health: Cape Winelands District
- Northern Cape Department of Health: Pixley-ka-Seme District
- Eastern Cape Department of Health: Amathole District

2. Non-governmental organizations:

S2S is a USAID provincial specialist partner forming part of the broader NGO network of PEPFAR support to the South African Government to improve HIV/TB health outcomes. S2S works closely with the following organisations:

- ANOVA Health Institute: USAID district implementing partner in the Cape Winelands District, Western Cape Province.
- Health Systems Trust: USAID district implementing partner in the Pixley-ka-Seme District, Northern Cape Province.
- IYDSA: USAID district implementing partner in the Amathole District, Eastern Cape Province.
- ITECH: Specialist training support partner to the NDoH Human Resources Directorate and Regional Training Centres.
- Keth'Impilo: Training collaboration on paediatric and adolescent HIV/TB.
- Broadreach: Training collaboration and technical assistance on paediatric and adolescent HIV/TB and eMTCT.
- 20 000+ UKZN: Quality improvement partner organisation.
- Aurum institute: Co-support of the NDoH PMTCT Steering Committee on quality improvement.
- WRHI: Co-support of the NDoH PMTCT Steering Committee on quality improvement.
- Institute for Healthcare Improvement: Providing technical assistance and training to S2S staff in quality improvement methods.
- Paediatric Aids Treatment Africa (PATA): PATA uses the S2S Paediatric HIV/TB Toolkit for training events.
- Numerous other NGOs and training institutions utilises S2S training material.

Teaching and training:

The table below is a summary of S2S staff and their current postgraduate studies.

S2S Staff Member	Degree Course	Institution
Admire Chirowodza	PhD in Counseling Psychology	University of KwaZulu- Natal
Justin Engelbrecht – Graduated 2016	MPhil in Health Systems Research	University of Stellenbosch
Justine Geiger – Graduated 2016	MPhil in Health Professions Education	University of Stellenbosch
Beryl Green	MPhil in Health Professions Education	University of Stellenbosch
Madoda Sitshange	DPhil in Social Work	University of Pretoria

DESMOND TUTU TB CENTRE (DTTC)

Director: Prof AC Hesseling

Letter from the Director

The past year at the Desmond Tutu TB Centre (DTTC) has been characterized by considerable transition, challenges, growth and opportunities. Our centre leadership was transitioned from its founding and visionary director, Professor Nulda Beyers, to Professor Anneke Hesseling, in March 2016.

Internal restructuring, the establishment of an ExCo, standardization of core support functions (e.g. laboratory, data, information technology, administrative support, logistics, operations and finances) have been established. Resulting from a deliberate strategy, increased internal collaboration has been established between our three main focus areas, underpinned by other key competency areas. New internal and external collaborations have been established and a strong emphasis has been placed on transformation of our researcher profile.

An exciting development has been partnering with South African institutions outside of the Western Cape Province, with three new investigator-initiated clinical trials led by the DTTC, which will be implemented in collaboration with national partners.

We have enormous human capital potential at DTTC, which is our main asset. As evidenced by the substantial number of South African, African and international postgraduate researchers, there is significant potential to train and retain a new generation of clinical and other researchers who will be able to impact on the tuberculosis and HIV epidemics in the Western Cape, in South Africa and beyond. The South African National Research Foundation SaRCHI Chair in Paediatric Tuberculosis, currently held by the director, offers a strategic and relatively sustainable platform to support this vision.

Looking ahead, we aim to continue with our strong collaboration with government partners, and to design and implement research which will truly impact on the tuberculosis and HIV epidemic in our setting. We will seek to further transform and diversify our researcher portfolio, engage in strategic new partnerships, seek long-term core funding for ongoing centre support, diversify our funding portfolio, and develop a strategy to anticipate and address expected and unexpected risks. Finally, we will develop and utilize more ambitious marketing and communication strategies to increase awareness and further improve the profile of the centre.



Desemba Tutu TB Centre Stategy House 2020 NENN A TB-free word for the act generation MISSION Do be a global research leader and provide expertise in the fields of TB and HIV



CROSS-CUTTING INSTITUTIONAL COMMITMENTS:

Develop clinical and research capacity in health services
 Train, mentor and build research capacity of post-graduate students and other personnel
 Policy development and implementation uptake through research, collaboration, dissemination and leadership

CORE RESEARCH CAPACITIES: Clinical trials, social science, community engagement, policy transfer, epidemiology, biostatistics, data



management, drug trials, pharmacokinetics

CORE SUPPORT: Human resources, operations and logistics, procurement and financial management, administration, communications, information technology, sample management

Figure 1. DTTC Strategy House



UNIVERSITEIT STELLENBOSCH UNIVERSITY

	Terminology
ACTG	AIDS Clinical Trials Group
AE/AER/EAE	Adverse Event / Adverse Event Report / Expedited Adverse Event
AIDS	Acquired Immunodeficiency Syndrome
ART/ARV	Antiretroviral Therapy / Antiretroviral
BMC	BioMed Central
BMRC	British Medical Research Council
CAB/CAG	Community Advisory Board/Community Advisory Group
CD4	Cluster of Differentiation 4
CDC	US Centers for Disease Control and Prevention
СЕВНС	Centre for Evidence based Health Care
CFP-10	Culture Filtrate Protein 10-kDa
CFU	Colony-forming units
CHIP	Community HIV Care Providers
СМ	Clarification Memo
СОМАРР	Community AIDS Prevention Project
CRS	Clinical Research Site
CTU	Clinical Trials Unit
CXR	Chest X-ray
DAERS	DAIDS Adverse Experience Reporting System
DAIDS	Division of AIDS, NIAID
DFID	Department for International Development
DMC	Data Management Center
DOT	Directly Observed Therapy
DR-TB	Drug-Resistant Tuberculosis
DS-TB	Drug-Susceptible Tuberculosis/Drug-Sensitive Tuberculosis
DSMB	Data and Safety Monitoring Board
DST	Drug Susceptibility Testing
EC	Ethics Committee
DTTC	Desmond Tutu TB Centre
ECG	Electrocardiogram
ERS/ATS	European Respiratory Society/American Thoracic Society
ESAT-6	Mycobacterium tuberculosis early secreted Antigen 6 kDa
EDCTP	The European & Developing Countries Clinical Trials Partnership
FAMCRU	Family Clinical Research Unit
FDA	Food and Drug Administration
FHI 360	Family Health International and Academy for Educational Development
FMHS	Faculty of Medicines and Health Science
FSTR	Frontier Science & Technology Research Foundation
HAART	Highly Active Antiretroviral Therapy
НСТ	HIV Counselling & Testing
HIV	Human Immunodeficiency Virus
HPTN	HIV Prevention Trials Network
HR	Human Resources
IMPAACT	International Maternal Pediatric Adolescent AIDS Clinical Trials Group
INH	Isoniazid
IRB	Institutional Review Board/ethics committee
IT	Information Technology
11	mormaton reciniology

Glossary of Terminology

LAB	Laboratory
LFMi	Lung Function Measurement instrument
LPV	Lopinavir
LPV/r	Lopinavir/ritonavir
MA	Master of Arts
MCC	Medicines Control Council
MDR-TB	Multidrug-Resistant Tuberculosis
MIC	Minimum Inhibitory Concentration
МРН	Master of Public Health
MRC	Medical Research Council
MS	Mass Spectrometry
MSF	Médecins sans Frontières
M.tb	Mycobacterium tuberculosis
NIAID	National Institute of Allergy and Infectious Diseases
NICHD	National Institute of Child Health and Human Development
NIH	National Institute of Health
NSP	National Strategic Plan
NTP	National TB Program
OR	Operational Research
ORAP	Operational Research Assistance Project
OGAC	Office of the U.S. Global AIDS
PC	Population Cohort
PEPFAR	President's Emergency Plan for AIDS Relief
PHC	Primary Health Care
PI	Principle Investigator
РК	Pharmacokinetics
PID	Patient Identification Number
SID	Study Identification Number
PMTCT	Prevention of Mother To Child Transmission
PTB	Pulmonary Tuberculosis
RIF	Rifampicin
QA	Quality Assurance
QGIT	Quantiference QGIT)
RSC	Regulatory Support Center
SACEMA	South African Centre for Epidemiological Modelling & Analysis
SADR	Suspected Adverse Drug Reaction
SANTP STI	South African National TB Program
STINT	Sexually transmitted infections Swedish Foundation for International Cooperation in Research and Higher education
SU	Stellenbosch University
TBTC	TB Trials Consortium
UCL	University College London
VMMC	Voluntary Male Medical Circumcision
ZAR	South African Rand (currency)
Achievements & Targets

Leadership and transition: Professor Anneke C. Hesseling was officially appointed Director of the Desmond Tutu TB Centre, effective 1 March 2016, following the retirement of its founding director, Professor Nulda Beyers.

KEY ACHIEVEMENTS 2016	TARGETS 2017
 Participation in 4 new global World Health Organization (WHO) treatment guidelines 12 Grants Awarded 54 Publications (PubMed) 16 PhD Students Registered 2 PhD Students Graduated Initiating new honorary appointments at DTTC 20 Masters Students Registered 188 Staff completed external capacity building coursework 171 Staff attended Stellenbosch University SETA courses Restructuring and standardization of core functions for database development and lab teams and sample management structures Establishment of first overarching DTTC Community Advisory Board (CAB) Director awarded SA NRF B1 rating (first application) South African NRF SarCHi Chair in Paediatric TB Transition to new leadership 	 Increased transformation of PI profile; HR strategic plan for staff wellness, retention, coaching, student mentoring and capacity building Regular scientific strategy planning for centre scientific leadership Ongoing restructuring and standardization of core functions including data, QA/monitoring, data, IT, labs and sample management Expansion of sustainable funding for DTTC core support functions Diversifying funding portfolio Expansion of additional key strategic honorary appointments Expansion of South African and African collaboration through instigator-initiated and trial networks Improved communication and profiling of the Centre (internal and external) 8-10 new international large grants planned for submission 3 new PhD students enrolled 2 new postdocs /senior researchers appointed

Paediatrics	Operational Research	POPART	Social Sciences
Investigators Prof Anneke Hesseling Prof Simon Schaaf Dr Karen du Preez Dr Anthony Garcia-Prats	Investigators Dr Pren Naidoo Sue-Ann Meehan	Investigators Prof Nulda Beyers, Dr Peter Bock	Investigator Graeme Hoddinott
Dr Jana Winckler Dr Louvina van der Laan Dr Elisabetta Walters	Project Managers Margaret van Niekerk	Medical Officer– Dr Kerry Joubert	Lario Viljoen Abigail Harper
Dr Anne-Marie Demers Dr Marieke van der Zalm Dr Megan Palmer	Zamakhaya Ndiki	Project Managers Blia Yang Nomtha Mandla	Constance Mubekapi- Musadaidzwa
Dr Sue Purchase Dr Adrie Bekker	Dr Sue Purchase Site Managers	Nozizwe Makola	Social Science Fieldworkers
Study Coordinators Petra de Koker Jessica Workman	Annalean Sampson Gertrude van Rensburg le Koker		
Sharon Mbaba Adelaide Carelse Serena Sukhari	aron Mbaba Enrolled nurses elaide Carelse HIV counsellors	Jacky Hlalukana Eliud Nkuna Charise Pedro Fortunate Ndaba	
Nurses Research Counsellors DOTS Community Workers	Data clerks Drivers	District Logistic Officers Nurses Supervisors Fieldworkers	-
Staff component including support staff $-n = 72$	Staff component including support staff $-n=52$	Staff component including support staff $-n = 407$	Staff component including support staff $-n=39$

Figure 2. Desmond Tutu TB Centre Staff Complement: 2016 (n= 520)



RESEARCH UPDATES

RESEARCH FOCUS AREA ONE: PAEDIATRIC TUBERCULOSIS

This key research focus area at DTTC is led by Anneke Hesseling, centre director. Four key areas, each led by a scientific lead, include: Therapeutics for DS and DR-TB in children (leads; Marieke van der Zalm, Anthony Garcia-Prats), prevention of TB in children (lead: Anneke Hesseling, evaluation of novel diagnostics and biomarkers for TB diagnosis in children (lead: Elisabetta Walters), TB vaccine trials (lead: Karen du Preez), which are underpinned by indepth epidemiological and operational research in children (lead: Karen du Preez).

Major focus areas for the DTTC paediatric team specifically include the evaluation of novel therapeutic strategies for MDR-TB in children, where it is a gobal leader in its field and is generating seminal data on an ongoing basis. The DTTC officially opened its upgraded state of the art paediatric pharmacokinetics clinical research unit at Brooklyn Chest Hospital (medical director: Tony Garcia-Prat) in July 2016 (refer to highlights, 2016), where it has been working since 2011.

During 2016, the paediatric group (n=60 personnel including 14 clinicians) at DTTC has specifically actively pursued improved internal collaboration within DTTC including between the social science group from PopArt (social science lead: Graeme Hoddinott), and the operational research pillar (lead: Pren Naidoo), as well as with other disciplines at the Tygerberg campus (Professor Gert van Zijl, Medical Virology), and Medical Microbiology (Professor Andrew Whitelaw) and at the Stellenbosch campus, including health economics (Professor Ronelle Borger) mathematical modelling (SACEMA, Dr. Alex Welte), and basic scientists including biochemists (Profesor Jacky Snoep), to support its expanding research agenda. Expanding national collaboration have included Shandukani (PI: Dr. Lee Fairlie and PHRU Matlosana site (Professor Neil Martinson) and new international collaborations have included the Uppsala pharmacometrics modeling group and Professor Tony Hu, Arizona State University and Professor Bob Husson (Boston Children's). The DTTC paediatric group is a clinic site for the DAIDS-funded International Maternal, Paediatric, Adolescent AIDS Clinical Trials (IMPAACT) and also for the US Centres for Disease Control (CDC) TB Clinical Trials Consortium (TBTC).

The paediatric group has been highly productive during 2016, resulting in a larger number of publications (refer to DTTC publications, Appendix I), participation in several national and international TB treatment guideline meetings, significant numbers grants awarded, strategic new South African and international collaborations, several national and international conference presentations and the graduation and ongoing support of several postgraduate students (See Appendix II)

Therapeutic trials: prevention of drug-susceptible TB

IMPAACT P1078: This IMPAACT-funded network multisite randomized controlled double blinded trial evaluates the safety and tolerability of isoniazid ante-vs. postpartum in HIV-infected pregnant women. DTTC was the last site to join this trial as a newly funded IMPAACT site, in 2015. 12 women were enrolled and follow-up will be completed by July 2017. The overall trial was closed to accrual in 2016 and follow-up is ongoing (740 maternal-infant pairs).

TBTC Study 35: This multisite study, funded by the CDC TBTC (PIs: Anneke Hesseling, Deron Burton, Kelly Dooley) will evaluate the optimal dosing and safety of the novel 12 dose combination regimen of rifapentine and isoniazid, shown to be efficacious in prevention of TB in adults and children. The protocol has been in development for 4 years and has been finalized and approved by the MCC and local ethics committees. 60 participants are expected to be accrued, starting in Q4 2017. A novel fixed dose score paediatric formulation has been developed for the trial.

Therapeutic trials: treatment of drug-susceptible TB (DS-TB)

SHINE: treatment shortening for non-severe pulmonary TB in children: This multi-site openlabel international trial evaluates (funder: BMRC/Wellcome Trust, DFID), is the first trial ever to evaluate the efficacy and safety of 4 vs. the standard 6-month WHO-recommended regimen for treatment shortening of non-severe DS TB in children in 1200 children in South Africa, Zambia, Uganda and India. The trial PI and sponsor is the MRC CTU at UCL (PI: Di Gibb). DTTC opened to accrual to July 2016; to date, 70 participants have been enrolled at DTTC. Nested PK sampling has been completed in 17 children to date. This trial, if successful will have a major impact on the current long treatment regimens for paediatric TB, which is usually paucibacillary (smear-negative). DTTC has led nested qualitive work to evaluate the acceptability and palatability of the new WHO-endorsed fixed dose combination formula used in the trial (findings presented at the 2016 WHO Childhood TB Subgroup meeting in Liverpool).

IMPAACT P1101: (PI: Anthony Garcia-Prats) this IMPAACT-funded multisite network phase I/II trial evaluates the PK and safety of raltegravir, a new integrase inhibitor, in combination with first-line TB treatment, including rifampicin. Children should be HIV-infected, on TB treatment but not currently on ARVs. This patient group has been difficult to enroll in Cape Town, given good HIV prevention and treatment services in children. Two participants have been enrolled to date and interim data analysis is ongoing for the overall trial (5 South African sites).

OptiRif Kids: this phase I/II trial (PI Hesseling), funded by TB Alliance, will evaluate the optimal and safe dose of rifampicin in HIV-negative children treated for TB. The study will utilize a dose escalation approach in 5 dosing cohorts, with a final sample size of 60 children aged 0-12 years. The PK target is determined by revent adult studies using high dose rifampicin (35-40 mg/kg per day in adults), which was well tolerated. Final study approvals including MCC and ethics have been obtained and the study will start during Q 2017. Findings from this study will inform the treatment of more severe forms of TB in children, where treatment shortening using current drug doses, is not realistic. This trial includes collaboration with the University of Cape Town Clinical Pharmacology Division, Radboud University, Nijmegen, and Uppsala University, Sweden.

Therapeutic trials: prevention of MDR-TB

TB-CHAMP: MDR-TB preventive therapy trial: This is the first ever randomized phase III placebo-controlled trial to assess the efficacy of levofloxacin preventive therapy vs. placebo in child contacts of multidrug-resistant (MDR) TB (TB). The sample size includes approximately 1500 children 0-5 years of age. The trial, led by DTTC (PI: Hesseling, Schaaf, Seddon) is funded by the BMRC/Wellcome Trust/DFID and includes 3 South African sites. Formative social science work has preceded the trial opening. A formal PK lead-in study has opened with the target of enrolling the bio-availability of a novel scored dispersible levofloxacin formulation, to be used in the trial, in 24 children (open-label). The main trial is

expected to open to accrual in May 2017. Once delamanid dosing and safety data is available (See Otsuka 232/233) in young children, children with pre-XDR and XDR exposure will be offered delamanid. This trial is likely to have a considerable impact on global and national guidelines and on clinical care.

Phoenix Feasibility study (A5300/P20013): This ACTG/IMPAACT led observational cohort study evaluated the feasibility and risk of TB infection, TB disease and HIV infection, in 20 international sites, in preparation for a larger interventional trial in 24 international sites, which is projected to open to accrual in 2018. This open label trial will evaluate delamanid vs. standard dose isoniazid for the prevention in all high risk contacts, including HIV-infected adults, TB-infected contacts and children below 5 years of age. DTTC enrolled 53 households over a 10-week enrolment period, with good retention rates, and is busy completing 1 year follow-up] in all high-risk contacts.

Therapeutic trials: treatment of MDR-TB

Otuska 232/233: PI Anthony Garcia-Prats: Along with a site in the Philippines, the DTTC is implementing this industry sponsor-funded (Otuska, Japan) Phase 1 (232) and Phase 2 (233) trials which seek to characterize the pharmacokinetics and safety of delamanid in children with multidrug-resistant (MDR) TB (TB). New drugs are desperately needed for the treatment of children with MDR-TB, and these trials are critical for ensuring timely access to this important new medication. In this age de-escalation trial, Groups 1 (ages 12-18 years) and 2 (ages 6-12 years) have fully enrolled, and data from these groups informed WHO guidance in 2016 for the use of delamanid in children 6-17 years of age with MDR-TB. Group 3 (ages 3-6 years) completed enrolment in 2016 with long-term follow-up ongoing, and Group 4 (ages 0-2 years) will begin enrolling in Q1-2 2017.

MDR PK 1: PI Anneke Hesseling. This NIH-funded (R01 grant) was completed during 2016. This study of the pharmacokinetics and safety of routine doses of existing second-line antiTB drugs in HIV-infected and uninfected children, was the first study of its kind, in some cases generating some of the only data on the pharmacokinetics and safety of these medications in children with TB. Over 4 years 312 children aged 0-15 years were enrolled and followed long-term for safety and treatment outcome. This study has already resulted in seminal data on the use of levofloxacin, ofloxacin, moxifloxacin, amikacin, high dose isoniazid, and the effect of MDR-TB treatment on the pharmacokinetics of ARVs commonly used in children. Analysis of para-aminosalicylic acid (PAS), ethionamide, terizidone, clofazimine and linezolid are ongoing. Long-term outcome and toxicity data will be reported separately. These data are informing international guidance on the dosing of these medications in children. The platform generated from this study has supported 5 PhD students and 6 masters degree students, to date.

MDR PK 2: PI Anthony Garcia-Prats. Building on the data, experience, and clinical platform of MDRPK1, this NIH-funded (R01 grant) seeks to evaluate the pharmacokinetics and safety of model-optimized doses of the key second-line antiTB medications levofloxacin, moxifloxacin, and linezolid in children treated for MDR-TB. The study will also characterize the acceptability and palatability of different dosing strategies and will evaluate the effect of formulation manipulation on pharmacokinetics in children. The total sample size is n= 100; to date, 42 children have been enrolled over an 18 month period. An interim analysis presented in October 2016 provided the first data on both moxifloxacin pharmacokinetics in children with TB.

IMPAACT P1108: PIs Anneke Hesseling and Simon Schaaf. This NIH-funded IMPAACT network phase I/II trial to determine the optimal and safe dose of bedaquiline in HIV-infected and

uninfected children with MDR-TB has been in development for 4 years. The protocol was fully developed and received MCC approval in 2016. Five international sites, including DTTC, 2 other South African sites, one in India and one in Haiti, will open up to accrual during 2017. Bedaquiline has become a critically important treatment option for adults with MDR-TB, with extensive roll-out of the drug within the routine TB programme setting in South Africa and many other countries; however the lack of data in children has prevented paediatric access. This trial will provide desperately needed data on bedaquiline in both HIV-infected and – uninfected children with MDR-TB in order to ensure paediatric access to this new TB medication.

TB vaccine trials (PIs: Hesseling, du Preez)

Vaccine Project Management (VPM): PI: Mark Cotton, project lead: Karen du Preez, site PI: Anneke Hesseling. This phase 2 multicentre trial evaluated the safety and immunogenicity of a novel recombinant BCG vaccine in HIV-exposed and unexposed infants, in 4 South Africa sites (overall PI: Mark Cotton). DTTC enrolled 40 infants in Khayelitsha during 2016 and the trial was closed to accrual during Q4 2016. Clinical follow-up is ongoing. No concerning safety signals have been detected based on interim data analysis.

Diagnostic and biomarker studies (PIs Elisabetta Walters and Anne-Marie Demers)

The diagnostic platform nested in the DTTC paediatric programme focuses on improving the diagnosis of TB in children. TB in children is mostly clinically diagnosed as the collection of high-quality sputum samples is resource-intensive and relatively invasive, and available laboratory methods are insufficiently sensitive to detect the low organism concentration typically found in samples from children. However, young children are at risk of delayed diagnosis due to poor diagnostic tools, resulting in increased risk of morbidity and mortality from advanced TB. The overall aim of the diagnostic platform is to improve the detection of TB in children using comprehensive strategies that are feasible, child-friendly and adequately sensitive to detect paucibacillary disease, focusing especially on young children.

We are evaluating different diagnostic approaches using samples that are minimally invasive and easy to collect, such as stool, urine and blood. Children who present to Tygerberg and Karl Bremer Hospitals with possible intrathoracic (pulmonary) TB are enrolled and thoroughly investigated clinically and bacteriologically. Novel diagnostic strategies are compared to a rigorous clinical and bacteriological reference standard which includes multiple respiratory samples analysed by smear microscopy, Xpert MTB/RIF and culture. The platform also includes a well-characterized bio-repository of blood and urine samples for evaluation of promising new biomarkers for TB diagnosis and treatment response. Children are followed to 6 months regardless of TB diagnosis. Over 600 children have been enrolled to date on this platform, with >85% retention at 6 months.

Utility of stool samples for the diagnosis of TB in children : We have published data demonstrating that the Xpert MTB/RIF assay on stool samples collected from young children who present to hospital with severe pulmonary disease can rapidly detect 1 in 4 children who will be treated on clinical grounds, and 1 in 2 who will be confirmed on respiratory samples collected using invasive procedures. These results should encourage resource-limited settings with access to Xpert, to attempt diagnosis using stool. It is common in these settings for children to present to hospital seriously ill with advanced disease, and to die of undiagnosed TB. Stool Xpert could be a life-saving strategy if applied to these paediatric populations.

In a hospital-based study in Cape Town, South Africa, we enrolled children below 13 years of age with suspected pulmonary TB from April 2012- August 2015. Standard clinical investigations included tuberculin skin test, chest radiograph and HIV testing. Respiratory samples for smear microscopy, Xpert and liquid culture included gastric aspirates, induced sputum, nasopharyngeal aspirates and expectorated sputum. One stool sample per child was collected and tested using Xpert. Of 379 children enrolled (median age 15.9 months, 13.7% HIV-infected), 73 (19.3%) had bacteriologically confirmed TB. The sensitivity and specificity of stool Xpert vs. overall bacteriological confirmation were 31.9% (95% CI 21.84-44.50%) and 99.7% (95% CI 98.2-100%) respectively. 23/51 (45.1%) children with bacteriologically confirmed TB with severe disease were stool Xpert positive. Cavities on chest radiograph were associated with Xpert stool positivity irrespective of age and other relevant factors (OR 7.05; 95% CI 2.16-22.98; p=0.001).

Stool Xpert can rapidly confirm TB in children who present with radiological findings suggestive of severe TB. In resource-limited settings where children frequently present with advanced disease, Xpert on stool samples could improve access to rapid diagnostic confirmation and appropriate treatment. Next steps: We plan to optimize stool sample processing for TB diagnosis, and test novel, more sensitive assays on stool samples.

Evaluation of novel TB biomarkers in children

- **1.** Urine Proteomics: In collaboration with Boston Children's Hospital (Harvard University; PI Professor R. Husson), our group was awarded a Thrasher Foundation Research grant to evaluate the diagnostic potential of host-based urine proteomic signatures for the diagnosis of TB in children. Preliminary data using urine samples collected from our cohort suggest that the urine proteome of children with TB differs significantly from that of children who do not have active TB. The project will span 2016-2018. Samples collected from South African, Kenyan and Peruvian children will be analysed in the US laboratory.
- 2. Serum bio-signatures: In collaboration with Arizona State University (PI Tony Hu; South African PI E Walters), we have obtained Ro1 funding from the NIH to evaluate a novel diagnostic method, independent of mycobacterial isolation, that quantifies the low molecular-weight *M.tb* antigens (CFP-10 and ESAT-6) and the TB-associated host marker IP-10 in patient blood samples. The technology utilizes hollow, energyfocusing TiO₂ NanoShells functionalized with custom antibodies specific for Mtb CFP-10 and ESAT-6 and host IP-10 peptides with high-throughput mass spectrometry (MS) to increase diagnostic sensitivity and specificity. Initial evaluation of 292 adult and 102 paediatric patients and controls NanoShell-MS sensitivity and specificity for active TB (bacteriologically confirmed and clinically diagnosed) was high in adults and children. NanoShell-MS results can be obtained within one hour of sample collection compared to 4-6 weeks for conventional culture, and detected decreases in blood Mtb antigen levels within four days of anti-TB treatment initiation. In this project, we aim to use NanoShell-MS profiling to develop a quantitative prediction model for active TB diagnosis in large, well-described prospective paediatric TB cohorts. We will also determine the utility of this technology for evaluation of treatment response.

Broader impact of TB in children: the impact of TB on child lung health and influence of respiratory pathogens on TB and lung health in children (PI Marieke van der Zalm)

There is limited data available on the impact of TB on long-term much health, and specifically, lung function measurements in young children living in resource-limited settings.

To date there has been no simple, reliable and reproducible lung function test, which can be used in infants and young children. We investigated the feasibility of a new handheld lung function apparatus in young children investigated for suspected pulmonary TB (PTB). This study was nested in the diagnostic cohort study in children investigated for suspected PTB in Cape Town, South Africa (PI Liz Walters). The lung function measurements were done using the automated Whistler LFMi (Medispirit BV, Nuenen, The Netherlands) meeting the ERS/ ATS criteria for infant lung function testing. Lung function measurements using the Whistler LFMi are feasible in young children with suspected PTB but ongoing training is needed to increase success rate. The role of *Mycobacterium TB* and other respiratory infections on short and long-term lung function in children requires further investigation. An EDCTP development grant was awarded to Marieke van der Zalm for 3 years to investigate the role of PTB and other respiratory pathogens on the lung health of children. For this study (expected to start Q2 2017), a total of 300 children with suspected PTB will be enrolled and followed up for 6- 12 months. Lung function measurements will be done at the start of the study and 6-12 months later. Respiratory pathogen investigations include bacteria (including PTB), viruses and the respiratory microbiome.

For paediatric operational research (lead: Karen du Preez): please refer to the overarching DTTC operational research section below

Highlights: paediatric TB team

The official opening of the NIH DAIDS-supported **Paediatric Pharmacokinetic Unit at Brooklyn Chest Hospital** including the naming of the **Simon Schaaf Clinical Wing** and the **Peter Donald Administrative Wings**, July 6, 2016: The keynote speakers were Professor Nico Gey van Pittius, Vice-dean, Research, Faculty of Medicine and Health Sciences, and Professor Mariana Kruger, Executive head, Stellenbosch University, and Dr Paul Spiller, Executive Director, Brooklyn Chest Hospital. Other distinguished guests included senior officials and TB experts from the Western Cape Department of Health City and Provincial offices and healthcare workers from the various government sites where DTTC conducts research. The ceremony was followed by a site tour of the PK Unit, the cutting of the ribbon and a social gathering with refreshments, which was thoroughly enjoyed by all.

The Khayelitsha Trial Unit was renamed, "Ubunye", meaning "unity", a trial platform which is being expanded to accommodate multiple preventive, treatment and diagnostic studies.

Grants awarded: paediatric team

DTTC was awarded the <u>NRF Knowledge Interchange & Collaboration (KIC) grant</u>, to the value of R60 000.00, submitted by Gwynneth Hendricks for scholarships for the 10th International Child TB Training Course (PI: Hesseling).

Elisabetta Walters was awarded a grant on studying urine proteomics from the **Thrasher Research Fund**, with Boston Children's Hopsital (\$150 000).

Anneke Hesseling was awarded a grant for OptiRif Kids (USD 450 000) from the TB Alliance, New York

Scholarships: paediatric team

Marieke van der Zalm was awarded an <u>EDCTP fellowship</u> for her work on lung function and respiratory pathogens in children.

James Seddon, Imperial College London, UK, was awarded a <u>Fullbright Scholarship</u> to spend 6 months at Harvard University, to model cost effectiveness of MDR-TB intervention in children, after which he plans to return to Cape Town to join DTTC faculty.

Dr. Muhammad Osman was awarded the <u>NSP and SACEMA scholarships</u> for his PhD work which will focus on TB and mortality.

Awards

Steffi Thee, was awarded the <u>HD Breede Award</u> 2016 for the best clinical postgraduate student research publication in the FMHS.

Academic Collaboration/ Exchange

DTTC was awarded the **STINT Swedish/SA collaborative award** to Uppsala University, Stellenbosch University , jointly; together with the University of Cape Town, Division of Clinical Pharmacology group.

Anneke Hesseling returned to DTTC February 8, 2016 from a **2 month sabbatical at Uppsala University in Stockholm,** with whom DTTC has several ongoing and planned new collaborative TB pharmacokinetic studies in children.

RESEARCH FOCUS AREA TWO: HEALTH SYSTEMS AND OPERATIONAL RESEARCH

The aim of the research in this pillar is to help improve TB and HIV care by building an evidence base for effective programme implementation. Operational research (OR) focuses on identifying gaps in health programme quality, efficiency and effectiveness, evaluating factors that contribute to these, and testing interventions to improve outputs and outcomes. Dr Pren Naidoo leads the OR pillar.

PROVE IT (Policy Relevant Outcomes from Validating Evidence on ImpacT) (PI: Dr Pren Naidoo)

Slow, inaccurate diagnostic tests have impeded TB control efforts. A new accurate, rapid molecular diagnostic test, Xpert[®] MTB/RIF, offers the prospect of identifying more cases, detecting them rapidly and enabling quicker treatment initiation. The aim of this study was to evaluate the impact of an Xpert[®] MTB/RIF-based TB diagnostic algorithm in a routine operational setting in Cape Town, guided by an Impact Assessment Framework. This entailed a pragmatic comparison between the historic smear/culture-based TB diagnostic algorithm and the newly introduced Xpert-based algorithm

In 2016, we published a stepped-wedge analysis of **TB yield** in five sub-districts undertaken between 2010 and 2013. Among the 54,393 presumptive cases tested, the proportion with a bacteriological diagnosis of TB was not increased in the Xpert-based algorithm. We found a decline in TB yield over time, possibly attributable to a declining TB prevalence. When the time-effect was taken into consideration, there was no difference between the algorithms:

TB yield was 19.3% in the Xpert-based algorithm compared to 19.1% in the smear/culturebased algorithm with a risk difference of 0.3% (p=0.796). Inconsistent implementation of the Xpert-based algorithm and the frequent use of culture tests in the smear/culture-based algorithm may have contributed to the yield parity.

A sub-study on **MDR-TB yield** found that amongst the 10,284 TB cases identified in the five sub-districts, the Xpert-based algorithm was more effective in identifying MDR-TB cases than the smear/culture-based algorithm. Pre-treatment, the probability of having drug susceptibility tests undertaken (RR=1.82, p<0.001) and of being diagnosed with MDR-TB (RR=1.42, p<0.001) was higher in the Xpert-based algorithm than in the smear/culture-based algorithm. Overall 8.5% and 6% of TB cases were detected with MDR-TB in respective algorithm, translating to approximately 375 additional MDR-TB cases diagnosed in Cape Town annually. This sub-study has been submitted for publication.

A sub-study on **laboratory costing** published in 2016 showed a 43% increase in overall PTB laboratory costs at the central laboratory in Cape Town, from \$440,967 (ZAR4,299,869) in the smear/culture-based algorithm to \$632,262 (ZAR6,165,187) in the Xpert-based algorithm for 3-month periods. The cost per TB case diagnosed increased by 157% from \$48.77 (ZAR476) in the smear/culture-based algorithm to \$125.32 (ZAR1222) in the Xpert-based algorithm. The mean total cost per MDR-TB case diagnosed was similar at \$190.14 (ZAR1954) in the smear/culture-based algorithm compared to \$183.86 (ZAR1793) in the Xpert-based algorithm.

We used study data from PROVE IT to develop and validate an **operational model** (PI Rory Dunbar) for the smear/culture and Xpert-based TB diagnostic algorithms in Cape Town. The model was developed using a discrete event simulator, to comprehensively represent PTB patient diagnostic pathways and processes in the smear/culture and Xpert-based diagnostic algorithms. We found that under identical conditions, the Xpert algorithm resulted in a 13.3% increase in TB diagnostic yield compared to smear/culture. The model demonstrated that the extensive use of culture in the smear/culture-based algorithm and the decline in TB prevalence over time were the main factors contributing to our failure to find an increase in diagnostic yield in the routine data. This sub-study has been submitted for publication.

Operational Research Assistance Project (ORAP - Lead: Pren Naidoo)

The overall aim of ORAP is to undertake operational research as an integral component of health programmes in South Africa to contribute to improved quality and performance of the health system. The national study completed in 2015 provided training to 115 health service providers and medical researchers from all nine provinces in South Africa trained, 36 research studies undertaken and 19 publications in peer-reviewed journals.

In November 2016, a new miniature version of ORAP was implemented in the Western Cape. Nine participants (6 from health services) embarked on a 6-month experiential learning course to develop a study protocol for research to be undertaken in 2017. Seven mentors from DTTC are supporting the trainees through protocol development, study implementation and publication of their findings. Protocols are due for completion and submission for ethics approval in March 2017.

Community HIV/AIDS Prevention Project (COMAPP - Lead: Sue-Ann Meehan)

This project, implemented since October 2011, addresses the challenge of reducing HIV transmission in high disease burden communities around Cape Town, with the aim to make HIV testing more accessible to all populations. The Desmond Tutu TB Centre provided overall management and technical assistance to a number of local non- governmental organizations (NGOs), who implemented HIV prevention services in the Western Cape communities of Nyanga, Philippi, Kraaifontein, Mfuleni and Somerset West.

The project consisted of two components;

- 1. HIV testing services were provided from community-based stand-alone centres (fixed premises) and on an outreach (mobile) basis in each of the five project communities. An integrated package of services (HIV testing, screening for TB and STIs, chronic health screenings, pregnancy testing, family planning and referral for medical male circumcision) were delivered to individuals or couples in a client-centred manner.
- 2. The "Families Matter! Program" (FMP), implemented since 2014, is an evidence-based programme which aims to enhance protective parenting practices that are associated with reduced sexual risk among adolescents and promote parent-child communication about sexuality and sexual risk reduction. Ultimately, the program aims to delay sexual debut and reduce risk of HIV transmission among adolescents. Implementation was in one project communities; Nyanga. Participants (caregivers of pre-adolescent children, 9-12 years) were recruited using a door-to- door strategy. Participants who were eligible and provided consent were enrolled in the program.

Key outputs:

- More than 25 000 clients were tested for HIV (49% of these were men). In total 868 clients were newly diagnosed with HIV; 64% were linked into HIV care and treatment at government health facilities.
- Within FMP, 442 caregivers attended all sessions and successfully graduated from the program.
- A video was made to capture the many successes and lessons learned from COMAPP. Direct service delivery came to an end after September 2016; the end of the 5 year funding cycle. The video can be viewed at the following address: <u>https://youtu.be/DhtSEU9rDjcat</u>
- COMAPP collaborated with FAMCRU in a pilot study to detect acute HIV infection in clients who tested HIV negative at a COMAPP testing site. Implementation started in April 2016 in two COMAPP areas; Kraaifontein and Mfuleni.
- COMAPP received \$350 000 additional funding from CDC to write a practical guide to implementing community-based HIV prevention activities. Experiences shared and lessons learned from South Africa. This provided a "no cost" extension for the project until June 2017.
- An expenditure analysis to determine how financial resources were expended and the costs associated with realizing key HIV outputs (HIV testing, diagnosis and linkage to HIV care) for the stand-alone and mobile HIV testing service modalities, was completed (manuscript was submitted to BMC health Services Research).

Paediatric operational research

TB KIDS E-Training: a novel pragmatic approach to training on paediatric TB for healthcare workers in the Eastern Cape Province, South Africa (Lead: Karen du Preez, Lienki du Plessis)

Novel, cost effective TB training strategies are needed in developing settings to scale-up training and decentralize management capacity. This study evaluated the feasibility of implementing an online childhood TB training course for community-based healthcare workers in the Eastern Cape Province, South Africa, and measured impact on knowledge.Training sessions were convened centrally and participants completed the course independently. A total of 220 primary-care participants (all service areas) completed pre-and post-training tests. The mean knowledge increase was 8% (95% CI 7.0-8.8,p<0.001). The course proved an acceptable, versatile option for decentralized training for childhood TB given that technology requirements can be met. (Manuscript in press; Public Health Action) Clinical characteristics and diagnostic practices of child TB cases managed at a high burden, district level hospital in Cape Town, South Africa (Lead: Lienki du Plessis, Karen du Preez)

The aim of this study was to characterize the paediatric TB burden and routine management practices at Khayelitsha District Hospital (KDH) - a district level hospital established in 2012. All children routinely diagnosed with TB at KDH during January-June 2014 were identified through a TB health system-strengthening project. Data was extracted from hospital folders, and compared to recommendations from 2013 South African National TB Program (SANTP) guidelines. A total of 102 children were identified during the study period, with 99(97%) folders available for review. More than two thirds of the children [71(70%)] were <2 years old; 69 (67%) male; 94(94%) with pulmonary TB and 19(19%) with extra-pulmonary TB (2 milliary TB and 1 TB meningitis case). Almost all children were tested for HIV [96 (97%)], 19(20%) were HIV-infected and 11 of these 19(58%) co-diagnosed with HIV and TB. Seventeen (17%) children had severe malnutrition. Household TB exposure was documented in 38/96 (40%) however only 5/36(14%) eligible child contacts received isoniazid preventive therapy.

Most children had symptoms suggestive of TB [coughing: 80(81%); failure to thrive/weight loss: 78(79%)] and 90(91%) had chest x-rays suggestive of TB. Bacteriological investigation was completed in 92(93%) children: 10(11%) had Xpert MTB Rif, 90(91%) had mycobacterial cultures and 8/92(9%) had both. Only 11/90(12%) children were culture positive, and 3/10(30%) Xpert positive. Resistance were confirmed in 2 cases (1 INH mono-resistant culture; 1 Rif-resistance Xpert).

The study found a young, acute on chronically ill cohort with substantial co-morbidities were managed at this district-level hospital. Clinical management were further complicated by delayed HIV diagnoses and missed opportunities for TB prevention. Overall management were consistent with SANTP guidelines however, improved utilization of Xpert driven laboratory algorithms may decrease follow-up burden and allow for rapid screening of drug resistance. Final analysis and manuscript preparation for this study is ongoing. Ongoing surveillance and linkage to care for children at KDH with TB is facilited by the DTTC paediatric team.

TB in Adolescents and Young Adults: Epidemiology and Treatment Outcomes in the Western Cape province, South Africa: (Lead: Kathryn Snow, Karen du Preez)

The main objective of this study was to characterize the TB epidemiology, disease presentation and treatment outcomes among adolescents and young adults (aged 10–24 years) in the Western Cape.

A retrospective, cross sectional review of routine patient-level data from the Electronic TB Register (ETR.Net) for 2013 were conducted. Site of TB disease, HIV status and TB treatment outcomes were analysed by five-year age groups (<5, 5-9, 10-14, 15-19, 20-24 and 25+ years of age), and TB notification rates were calculated using census data.

The study found that adolescents and young adults contributed 18.0% of all new TB notifications in 2013. The notification rate was 141 TB cases per 100,000 person years (py) among 10-14 year olds, 418 per 100,000 py among 15-19 year olds, and 627 per 100,000py among 20-24 year olds. HIV prevalence among TB patients was 10.9% in 10-14 year olds, 8.8% in 15-19 year olds, and 27.2% in 20-24 year olds. Older adolescents (15-19 years) and young adults (20-24 years) with HIV co-infection had poor treatment outcomes; 15.6% discontinued treatment prematurely and 4.0% died.

Main messages from this study included the substantial burden of TB young people in the Western Cape suffer, and the high risk of treatment discontinuation amongst older adolescents and young adults with HIV/TB in this setting. This work will inform future more accurate estimates of burden of TB disease in children and young people in the Western Cape and beyond. (*Manuscript in press; International Journal of TB and Lung Diseases*)

RESEARCH FOCUS AREA THREE: PRAGMATIC COMMUNITY RESEARCH

HPTN071 (PopART) (Lead: Nulda Beyers, Peter Bock)

The HPTN 071 or PopART study is a cluster-randomized trial which aims to determine the impact of two community-level combination prevention packages, both of which include universal HIV testing and intensified provision of HIV/ART care, on population-level HIV incidence. The study is being conducted in 9 communities in South Africa and 12 in Zambia and enrolment. Communities have been randomized to arms A (full intervention prevention package plus ART regardless CD4 count), B (full intervention prevention package plus ART according to government guidelines) or C (standard of care). Following recent changes to ART guidelines Arm A and B are now both offering ART regardless CD4 count. Despite this change the study is still well powered to evaluate the primary outcome, HIV incidence. At each site of the arm A and B sites, interventions are delivered to the entire community by a cadre of community HIV care providers workers (ChiPs) with referrals to government Primary Health Care (PHC) clinics. ChiPs provide clients with condoms, screen and refer relevant clients to government clinics for HIV, TB and STI treatment and voluntary male medical circumcision (VMMC). Primary outcomes are measured in a randomly selected individual level cohort of approximately 2000 individuals in each community (including the Arm C communities) over 36 months referred to as the population cohort (PC). Details of the interventions and trial outcomes are outlined below. There is also an extensive social science component to describe and explain the trial outcomes; inclusive of formative research conducted before

intervention implementation and ongoing research throughout the study period. Refer to DTTC social science component for summaries on qualitative work conducted for this trial.

The study is currently conducting the 3rd annual round of the Chips intervention which will be completed end 2017. PC follow up will be completed in June 2018. Between June and Dec 2018 there will be extensive consultation with stakeholders as part of a planned exit from study communities and clinics. The primary findings of the study will be reported end 2018/early 2019. In October 2016 the PopART interim Data Safety Management Board (DSMB) review was completed over 3 days in Lusaka Zambia. The outcome of the review was favourable, the DSMB recommending that the PopART study continue until study completion as outlined in the HPTN 071 (PopART) research protocol.

PopArt highlights: 2016

The Annual Round 2 for the intervention part of the study started 1 June 2015 was completed 01 Aug 2016. During this time ChiPs newly diagnosed 1,923 clients with HIV. At the end of the Round 2, there were 9,184 clients known to be HIV positive in the PopART database (this includes newly diagnosed from Round 1, newly diagnosed from Round 2, and clients who self-report they are HIV positive). CHiPs follow up on clients by returning back to houses to provide additional counselling if need be to link them into HIV care, and for retention in care. At the end of Round 2, 87.5% were in HIV care and 76.5% were on ART. The Intervention team work closely with the clinics to bridge the gap between the community and the clinic for clients by having regular meetings with clinic staff. During Round 2, there were 160 clients identified as TB positive, and 139 (86.9%) started on TB treatment.

The PC 2nd round (PC12) which started in August 2015 was completed end June 2016. During PC12, PC teams successfully retained 12 821 participants from the baseline round (PC0). IN addition a further 212 participants were enrolled as an addition to the cohort referred to as PC12N. In mid-August 2016, the subsequent PC round (PC24) was started. By end 2016 (6 088 (38%) of the scheduled follow up assessment visits were completed.

Grants awarded: PopArt

The PopART Research Collective comprised of a select few PopART staff and representatives from PopART implementing partners (Department of Health, City of Cape Town, Kheth'Impilo and ANOVA health Institute) received 2 was awarded an amount of for the <u>Decision-Maker</u> <u>Led Implementation Research Grant</u> awards offered by the Centre for Evidence-based Health Care, Stellenbosch University. The research study "Promoting uptake of ART at CD4 counts greater than 500 – lessons from three facilities in Metro and Rural Sub-districts, Western Cape Province, South Africa" received 140, 000 South African Rand is led by Neshaan Peton, Graeme Hoddinott, Constance Mubekapi-Musadaidzwa, Gabriela Carolus, Kelly Abrahams, Portia Hendricks and Rheiner Mbaezue. The second research study, "The effect of adherence clubs on quality of clinic care for HIV+ patients on antiretroviral treatment in the Cape Winelands District" is led by Colette Gunst, Peter Bock, Rory Holtman, Rosa Sloot and Nelis Grobbelaar and received ZAR 106 000.

DTTC SOCIAL SCIENCE COMPONENT (SUPPORTING ALL 3 RESEARCH FOCUS AREAS)

Social science is a key competency supporting research priorities at DTTC. In 2016, the social team increased its internal collaborations from what had been principally an HPTN 071 (PopART) focus. Key ongoing contributions to HPTN 071 (PopART) are (a) annual observations and qualitative discussions about implementation process lessons, (b) a qualitative cohort of 96 families for in-depth documentation of the experiences of people living in study communities - including successful completion of a three-month module about mobility, migration, and transience, and (c) implementing the HPTN 071a ancillary study on HIVrelated stigma – survey rounds are in 2014, 2015, and 2017 so the team prioritised data cleaning and baseline analyses. The team's contribution to DTTC's strategic agenda was expanded in 2016 to include the evaluation of another ancillary study on young people's (aged 10-24) access to HIV-related services in the PopART for Young people (P-ART-Y) study. For the first time in 2016 the social science team made a major non-HPTN 071 (PopART) contribution by implementing the formative/feasibility evaluation at two sites - Cape Town and Pietermaritzburg – in advance of the TB CHAMP trial. Further, the team implemented an evaluation of the acceptability – including palatability – of the new fixed dose combination child-friendly formulation of TB treatment. The team are also collaborators on a pilot study on the combined impact of alcohol use and ART on cognitive functioning and brain function with the Department of Psychiatry, Stellenbosch University – 60 study participants enrolled and baseline assessment complete, six-month follow-ups are ongoing. Finally, the team were hired by ANOVA Health to retrospectively document lessons learnt about transitioning from paper-based registers to electronic data capture of TB data into the TIER.Net system at the clinical-level at three pilot clinics in the Cape Winelands. Two social scientists were awarded their Masters-level degrees in 2016 – Gabriela Carolus, MA in Sociology, Stellenbosch University and Kelly Abrahams, MPH, University of Cork. In total, the team contributed to six papers, two oral presentations, and five poster presentations at international conferences in 2016. The team looks forward to the successful completion of the P-ART-Y study and continuing to expand its internal collaborations in 2017.

OVERALL TRAINING ACTIVITIES AND CAPACITY BUILDING AT DTTC: 2016

The TB Clinical Fourm 2016, hosted by DTTC at the Stellenbosch University FMHS and organized by the City of Cape Town officials was held monthly between February and November 2016 with the objective of creating an interactive platform for academic researchers and government official in health services. Experts from the FMHS and City presented a broad range of relevant scientific research topics. An average of 50 participants attended these lively CPD-accredited interactional meetings on Friday afternoons, facilitating dialogue between service providers for TB and HIV care, and researchers at DTTC and the medical faculty. Four speakers from DTTC presented during 2016.

The DTTC Academic Meetings 2016, held fortnightly at the FMHS targeted academic researchers to engage in ground-breaking research initiatives. Speakers from local and abroad were invited to present their area of research in a broad range of relevant topics. 5 International and 5 internal speakers presented during 2016, with broad ranging relevant topics.

TB training for government health workers in Swaziland, March 2016 conducted by Simon Schaaf, Helena Rabie, Robert Gie and Anna Mandalakas.

Motivational talk by Lewis Pugh April 29, 2016 "Achieving the Impossible" was_held at Tygerberg Campus, Stellenbosch University as part of the PopART Protocol Refresher Training for CHiPs. Lewis Pugh, a United Nations Patron of the Oceans talked on "achieving the impossible", the challenges that come with it and how to translate this into your daily work. All DTTC personnel were invited to attend this inspirational presentation.

Positive Leadership, Positive Change (HIV, Gender, and Disability) Workshop July 13-15, 2016: Facilitated by Stellenbosch University held at Protea Hotel, Tygervalley. The workshop equipped staff members with being mindful and developing awareness of fellow colleagues that may be affected by gender and disability discrimination. Attended by the PopART Intervention team.

TB and HIV Occupational Health Policy for Health Care Workers Workshop August 11-12, 2016 : Facilitated by the Western Cape Government Department of Health and PEPFAR held at the Sun International Hotel, Johannesburg. The workshop equipped managers with changes to be implemented at the site level in the office and in the field in regards to ensuring staff members are abiding by TB infection control and HIV occupational health policies. Attended by the PopART Intervention team.

The 10th International Child TB Training Course, September 25-30, 2016 was held at the Goudini Spa Resort, Worcester. Simon Schaaf and Anneke Hesseling were the convenors with James Seddon, clinical lecturer, from the Imperial College, London, invited as the keynote speaker. This year the course was extended by an extra day for the first time to 4 full days to include more focus on MDR-TB. There were 48 participants from 14 countries, including 14 South African participants of which 10 were sponsored through the NRF Knowledge, Interchange & Collaboration (KIC) funding secured this year. This year DTTC paediatric clinician, Sue Purchase attended. Elin Svensson and Thomas Dorlo from Uppsala University, Sweden, were invited to visit as observers. The course is Stellenbosch University accredited. Good reviews were received from participants.

DTTC supported the submission of 19 provider-led Operational Research studies to the Centre for Evidence-based Health Care (CEBHC). Teams from 6 studies were invited to submit full proposals.

FSTRF DMC Regional Training November 14 -18, 2016: hosted by DTTC at the Faculty of Medicines and Health Sciences was facilitated by FHI's, Mary Wojcik-Cross and Stephanie Neyman for 80 participants from South Africa and other African countries.

Social Science Writing Retreat at Fynbos Estate in Malmesbury, December 12 – 15, 2016: The social science graduate research team (15 pre-masters to PhD students) attended this writing retreat at Fynbos estate. The retreat was facilitated by Dr. Lindsey Reynolds and gave researchers and new writers the opportunity to talk through manuscript concepts and to consult with Lindsey and Graeme Hoddinott regarding their ideas and article structure.

ADVOCACY AND COMMUNITY ENGAGEMENT

THE DTTC COMMUNITY ADVISORY BOARD (CAB)

The establishment of a DTTC-CAB with a TB focus was initiated in June 2015 and was officially launched in November 2015, when the first general meeting was held at the Brooklyn Chest Hospital site. The CAB members joined other IMPAACT/ACTG CABs in their first development and capacity building event at the <u>IMPAACT/ACTG CAB Retreat at Goudini Spa, Rawsonville,</u> <u>Western Cape, November 18 -20, 2015</u>.

Kathy Hinson and Rhonda White of FHI 360 hosted a workshop January 30 to February 01, 2016 in Franschoek on <u>General CAB development, structure, functions and sustainability</u> – for IMPAACT/ACTG CABs and CLOs

The formulation of a <u>DTTC-CAB Constitution and an SOP</u> was achieved during the development workshops in February and March 2016, followed by the adoption of these documents in April 2016. This was followed by training facilitated by Reverend David Galetta entitled, <u>"The roles and responsibilities of CAB members"</u> on May 21, 2016 and "<u>Leadership and team dynamics</u>", June 18, 2016. <u>Research protocol training was conducted by PIs and/or paediatric TB study coordinators</u> on 21 May 2016 for TB CHAMP, 18 June 2016 for SHINE and 23 July 2016 for P1101.

Monthly General Meetings were conducted throughout the year in 2016 and monthly Steering Committee meetings started in addition to these, after the election and appointment of a 7-member steering committee in September 2016.

Other DTTC CAB activities included:

- IMPAACT Annual Meeting in Washington June 10 -17, 2016 attended by the CLO.
- CAB members and the CLO attended: 6th International Peace Lecture; Desmond & Leah Tutu Legacy Foundation at the Artscape Theatre.
- CAB 2017 Strategic Planning Workshop November 25 26, 2016, at FHMS, Tygerberg. Dr Musonda Simwinga from Zambia facilitated the workshop.
- IMPAACT/ACTG CAB Retreat was held at Goudini Spa, December 2 4, 2016 (10 DTTC CAB members attended).
- CAB members attended the Annual DTTC Dissemination Meeting 2016 at Kirstenbosch, December 9, 2016.
- CAB members participated in a team-building activity on the red open-top bus city sightseeing tour December 10, 2016 from the Waterfront to Hout Bay.

The HPTN 071 (PopART) CAB

Each clinic has a health Committee that links it with its community. The PopART CAB was established in 2013 with representatives from the 9 sites in which PopART is being conducted. These representatives (2 from each site) were chosen from these health Committees. members and they work as volunteers in making sure that health related issues within their communities and the clinics are addressed properly. The CAB is the link between the communities and the PopART researchers and has a constitution with rules and guidelines as to how to conduct their meetings. The PopART CAB meets once a month where various study related issues are discussed.

The CAB helps the researchers in making sure that community related issues are addressed and that misunderstandings between the community and the researchers are dealt with in a professional way. The CAB takes initiative in setting up these meetings. The CAB also helps in reviewing community related study material like informed consent documents and study questionnaires. In return, DTTC offers trainings for these members to develop them. These are some of the trainings that have been given to the CAB by Pop ART.

- From 2013, Pop ART has been represented by a Community member in the HPTN Annual meetings held in DC.
- GCP training
- Basic HIV knowledge
- Minute and record keeping
- Protocol Review (Community section) done by FHI360 representatives at Franschoek in 2016.
- Basic Counselling
- Cancer screening tips

THE HPTN071 (PopART) P-ART-Y COMMUNITY ADVISORY BOARD (P-ART-Y -CAB)

The establishment of a study-specific CAB to focus on the interests of 15-24 year olds in the P-ART-Y study was recommended by the HPTN 071 (PopART) CAB and held its first members meeting in July 2016, at the Desmond Tutu TB Centre seminar room. The P-ART-Y CAB members are all aged 15-24 years old and all live in the HPTN 071 (PopART) study communities. The CAB has monthly meetings on Saturdays.

The drafting of a <u>P-ART-Y CAB Constitution and 2017 Work Plan</u> was completed in November 2016 in a workshop facilitated by P-ART-Y project manager and DTTC graduate researcher Constance Mubekapi-Musadaidzwa. <u>Monthly General Meetings</u> were conducted between July and December 2016.

The P-ART-Y CAB has **two main functions**:

- 1. To advise researchers about how best to implement the P-ART-Y evaluation survey, and
- 2. To support the community-level delivery of optimisations of the PopART intervention package for young.

Other P-ART-Y CAB activities included:

- **P-ART-Y Study Advisory Group meeting, 12-13 July 2016, Lusaka, Zambia** attended by four members of the P-ART-Y CAB.
- Supporting **17 P-ART-Y "Futures' Spaces" events hosted in PopART intervention communities** – attended by over 350 young people

<u>World TB Day March 24, 2016</u>, the Paediatric team joined the "<u>Louder Than TB</u>" campaign launched by the TB Alliance, New York and the team joined multiple global partners in the "<u>Unite to End TB</u>" email signature campaign of the World Health Organisation.

World TB Day March 24, 2016: COMAPP teams worked in collaboration with Department of Health, Department of Social development and Department of education to implement community events that raised awareness and provided education on TB. Vukani (local community Newspaper in Nyanga) featured an article "Schools seek means to improve results" on the 17 March 2016, describing a TB event which was a collaboration between the COMAPP Nyanga HCT team and New Eisleben High School.

<u>MSF Stakeholder meeting October 14, 2016</u> – The meeting was held at Isivivane Centre – Khayelitsha. Rodd Gerstenhaber (Project Coordinator – MSF Khayelitsha) chaired the meeting. Representatives from the following organisations were also present: ANOVA, Kheth'Impilo, TBHIVCARE, City of Cape Town and Western Cape Department of Health. Members from the PopART Intervention team who attended: Jerry Molaolwa – PopART Intervention District Manager

<u>The Christian Catholic Apostolic Church in Zion November 12, 2016</u>, Bishop MM Mpanderequested a speaker to present information on TB. DTTC clinician, Sue Purchase from the paediatric TB team volunteered and led and interactive session with the community.

World AIDS Day December 1, 2016 the PopART Intervention team from two sites participated in two events on the day in Khayelitsha and Strand. Medecins Sans Frontiers (MSF) Khayelitsha coordinated the event which was held at OR Tambo Hall, Khayelitsha for the community as an awareness and outreach program. The event held at Anointed Church in Strand was to raise awareness, prevention and show support to children affected and living with HIV/AIDS. DTTC offered HIV testing services for the community. A total of 48 people were tested for HIV. 26 of them were females, and 22 were males.

Representatives from TBHIVCARE; CHiP Supervisors (PopART Intervention), and the community of Nomzamo attended.

<u>Annual DTTC Dissemination meeting, December 9, 2016</u> – The meeting was held at Kirstenbosch Botanical Gardens. Jerry Molaolwa from PopART Intervention and Nomtha Mandla from PopART Population Cohort were the MC's for the meeting.

The opening address, delivered by Anneke Hesseling, Director of the Desmond Tutu TB Centre, focussed on the 2016 challenges, opportunities and thanksgiving. Three guest speakers, James Kruger (Western Cape Department of Health) spoke about, "The Impact of TB and HIV research in the Western Cape", Virginia de Azevedo (City of Cape Town Health Directorate), spoke about, "The first 1000 days of life: what does this mean for children in Cape Town", and Godfrey Mbulelo Tabata (Chairperson of the DTTC Community Advisory Board) spoke about, "Community Perspectives on TB". Thereafter personnel from the DTTC studies, HPTN071(POPART), COMAPP, Paediatric TB and Operational Research shared highlights and experiences of 2016.

DTTC staff, senior personnel from Stellenbosch University FMHS, personnel of City/Province, members of the DTTC affiliated Community Advisory Board structures and members of the media were in attendance. All enjoyed a meal together afterwards in the Moyo Restaurant.

CONFERENCES

Local Conferences

21st International AIDS Conference, Durban, July 18-22, 2016: Various DTTC researchers form all research pillars attended this conference. The conference provided a special opportunity for early career researchers to attend this high profile event and learn from leading experts.

Posters Presented at the 21st International AIDS Conference

- Anthony Garcia-Prats presented on the Safety and tolerability of levofloxacin in HIV-infected and –uninfected children treated for multidrug-resistant TB during the session, Paediatric MDR-TB and Clinical Epidemiology on July 17, 2016.
- The Pre-Conference TB Plenary on Saturday, July 16, 2016 was chaired by Anneke Hesseling.
- The TB focused meetings preceded the main AIDS conference and were held on the weekend prior, July 16-17, 2017. The Paediatric TB seminar on Saturday, July 16, 2016 was chaired by Anneke Hesseling. Tony Garcia Prats of the paediatric team presented while two enrolled nurses, Melvina Stollie and Klassina Zimri attended.)
- Leandie September, Margaret van Niekerk, Sue-Ann Meehan. Working towards increasing the number of HIV-infected people who know their status in Cape Town South Africa. Learning from two innovative community-based HIV counselling and testing strategies!"
- Vuyiswa Ndudana, Margaret van Niekerk, Sue-Ann Meehan. Describing demographic and clinical characteristics of HIV positive clients who link to care from 5 Community-based HIV Counselling and Testing sites in Cape Town, South Africa.

HPTN071 (PopART):

- Thomas¹, G. Hoddinott¹, J. Seeley^{2,3}, V. Bond^{2,4}, G. Carolus¹, M. Simuyaba⁴, J. Hargreaves⁵, L. Viljoen¹, On behalf of the HPTN 071 (PopART) Study Team Talking sex and interpreting HIV risk in South Africa and Zambia: an analysis of the influence of colloquial discourse on conceptualisations of sex, HIV-related risk and stigma.
- Harper¹, S. Krishnaratne², H. Mathema³, D. Milimo⁴, P. Lilliston⁵, G. Hoddinott³, T. Mainga⁴, M. Moyo⁴, A. Schaap⁴, V. Bond^{2,4}, J. Hargreaves⁶, A. Stangle⁵, On behalf of the HPTN071 (PopART) Study Team. High levels of self-reported personal accomplishment amongst three cadres of healthcare workers: baseline findings from the first round of the HPTN 071 (PopART) stigma ancillary study.
- H. Myburgh¹, G. Hoddinott¹, M. Theart¹, N. Grobbelaar², L. Viljoen¹, on behalf of the HPTN 071 Study Team. Discrepancies between 'my address', 'where I live', and 'where you might find me' – qualitative lessons for HIV data capture in expanding HIV clinic services to community based services.
- S. Nomsenge¹, A. Thomas¹, G. Hoddinott¹, G. Carolus¹, V. Bond^{2,3}, On behalf of HPTN 071 (PopART) Study Team. Taking on faith: a narrative analysis of discussions about HIV used by participants' platforms for contesting faith in 9 high HIV-burden communities in the Western Cape, South Africa

International Conferences

- <u>CROI 2016 Boston, USA, February 22-25, 2016</u>: The Conference on Retroviruses and Opportunistic Infections (CROI) was held in Boston, USA with colleagues from HPTN 071 (PopART) representing oral presentations and oral presentations. Dr Peter Bock represented HPTN 071 (PopART) of Desmond Tutu TB Centre, Stellenbosch University.
- <u>HPTN/IMPAACT Annual Meeting in Arlington, Virginia (USA) June 10-18,</u> <u>2016:</u> Graeme Hoddinott attended this workshop, including the HPTN Community Engagement Working Group pre-meeting. Paediatric personnel in attendance were Anne-Marie Demers, Frieda Verheye-Dua, Simon Schaaf, Tony Garcia-Prats, Gwynneth Hendricks and Anneke Hesseling (via SKYPE)
- <u>IMPAACT Paediatric MDR-TB Landscape Meeting in Arlington Virginia</u> (USA) June 17, 2016: attended by Graeme Hoddinott, Simon Schaaf, Tony Garcia Prats, Gwynneth Hendricks, Frieda Verheye-Dua and Anneke Hesseling via webex.
- World Health Organisation Conference, Geneva July 9-14, 2016: Prof Simon Schaaf participated.
- Public Health Conference in Kuching, Malaysia, July 11-14, 2016: Margaret van Niekerk, Heather Draper, Rory Dunbar, Sue-Ann Meehan presented: "Communicable and non-communicable disease burden at community-based HIV counselling and testing sites, Cape Town, South Africa".
- <u>47th Conference on Lung Health, Liverpool, October, 26-29, 2016</u>: Graeme Hoddinott attended and reported on the findings of the SHINE trials' palatability and acceptability of a new fixed dose combination, peadiatric-friendly formulation of drug susceptible TB treatment. 6 paediatric staff members attended.

SCIENTIFIC MEETINGS AND WORKSHOPS ATTENDED BY DTTC STAFF

HPTN 071 (PopART) Annual Meeting held at Franschhoek Hotel, February 1-4, 2016: The annual meeting brought together +120 colleagues who work for HPTN 071 (PopART) from all across the world from Desmond Tutu TB Centre, Stellenbosch University, the London School of Hygiene and Tropical Medicine, Imperial College, ZAMBART (Zambia AIDS Related TB Project), HPTN (HIV Prevention Trials Network), HPTN CORE at FHI 360 (Family Health International), the Western Cape Government Department of Health, the City of Cape Town Health Directorate, OGAC (Office of Global AIDS Coordinator), CDC, USAID, UNAIDS, WHO, and PEPFAR implementing partners. The meeting discussed the annual progress of the HIV trial, successes, challenges, and strategies to improve.

<u>CDC Audit for PopART and COMAPP, March 16 – 18, 2016</u>: Joan Rangwaga and Michelle Smith from the Centre for Disease Control (CDC) Pretoria visited DTTC, Stellenbosch University to review financial management, human resources, payroll, procurement, audits, internal controls, and the overall structure of the organization. Overall the audit went very well and they were happy with the financial management of the grant.

WC DOH Strategic Planning Workshop, March 17, 2016: Anneke Hesseling, Simon Schaaf and Pren Naidoo participated

TB Trial Consortium (TBTC) meeting in Atlanta, USA, April 7, 2016: Anneke Hesseling and Anne-Marie Demers attended

National workshop to discuss the revised HIV testing services policy, Dept of Health and CDC April 7, 2016: Held in Pretoria and attended by PopART Intervention staff (Yvonne Saunders & Elizabeth Batist). Workshop was held to discuss the revised HIV testing services policy. One of the new changes was around the HIV testing services algorithm.

Shandukani Site visit in Hillbrow, April 7, 2016: _Anneke Hesseling visited the site, which concentrates on Paediatric HIV and is led by Lee Fairlie. This site forms part of the TB Champ study. This site will also collaborate with DTTC on the CDC Study 35 and OptiRif Kids studies in 2017. Anneke and Simon Schaaf undertook to make 3-4 sponsorships available to these study Shandukani and Matlosana site clinicians to attend the Child TB Training Course 25 – 30 September 2016. The aim is to promote collaboration and skills exchange between our site and those in Hillbrow, Klerksdorp and Pietermaritzburg.

<u>City Award Ceremony at the Cape Town Civic Centre April 15, 2016</u>: Anneke Hesseling attended and DTTC studies such as COMAPP and PopART were acknowledged.

<u>Annual ACTG/IMPAACT DSMB meeting, May 2, 2016</u>: Anneke Hesseling attended for the A5300/P2003 MDR preventive therapy trial ("Phoenix") at the Hyatt Regency Hotel in Johannesburg.

Workshop with ANOVA Health Institute to discuss innovations in using Geographic Information Systems (GIS) for ART delivery May 10, 2016: Graeme Hoddinott, Hanlie Myburgh, and Mark Theart met with ANOVA Health colleagues, Dr Helen de Klerk (UWC), and Dr Allison Ruark. The various potential uses for GIS in optimizing ART delivery were articulated and discussed. A plan was drafted to submit this discussion as an abstract to upcoming local public health conferences.

Metro District 90 90 90 Steering committee meeting, May 10, 2016: The steering commitee meeting is a forum for collective sharing of ideas with the aim of achieving the 90/90/90 targets for HIV & TB by 2020, in the WC Metro district. This group also provides direction to the sub-structures & sub-districts within the WC Metro District and offers technical support for the implementation of the 90/90/90 strategy. The Principle Investigator and Project Manager attend the meeting and presented the COMAPP Workplan.

Planning discussion about future collaborations for social science in the Karoo with Prof Cheryl Walker and Dr Thomas Cousins (Department of Sociology and Social Anthropology, SUN) May 10, 2016: Professor Walker has been awarded a SARCHI Chair to support mixedmethod social science about health and development in the rural Karoo. This meeting served as a starting point for discussing potential points of collaboration with DTTC, including postgraduate students and linked to DTTC's existing involvement in the new degree programme on Transdisciplinary Health and Development Studies (between the Department of Sociology and Social Anthropology and the Division of Community Health).

Workshop session for regulatory officers, Pretoria May 11, 2016: Frieda Verheye-Dua visited the MCC offices in Pretoria

Rural Research Days hosted by Ukwanda in Worcester May 19-20, 2016: Various PopART staff attended and the following presentations were presented:

- Hanlie Myburgh (DTTC) presented an oral on addresses captured at a facility in the Cape Winelands compared to actual residence.
- Sheldon Hendricks: The uptake of condoms as part of a combination prevention package in HPTN 071 (PopART) South Africa
- Sandra Grunewald: Collaboration with supporting partners to link and retain HIV+ children into HIV care in Wellington, Western Cape Province, South Africa.
- Jerry Molaolwa: Lessons learned with the use of a handheld Electronic Data Capture (EDC) device during clinical trials
- Peter Bock: Update and early research findings for POPART
- Fortunate Ndaba et al: Lessons learned about Phlebotomy and HIV rapid testing in the Population Cohort: Nurses perspectives from South Africa.

Poster Presentations:

 Francionette Esau: Lessons learned on household TB screening, TB diagnosis, and the initiation of TB treatment in HPTN 071 (PopART) Intervention South Africa

Analysis workshop on the influence of space on Healthworkers' perceptions about HIVrelated stigma in health facilities with Dr Virginia Bond in Tulbagh May 23-27, 2016: Graeme Hoddinott and Sinazo Nomsenge (DTTC) met with Dr Bond to analyze data collected in 21 health facilities between November 2015 and May 2016. A final draft of a poster titled for the AIDS 2016 Conference (Durban 18-22 July) was produced and circulated to co-authors. Progress was also made towards drafting a paper outline on these data.

"Reaching 90-90-90 in South Africa Part III Best Practices & Innovations in Linkage, Treatment and Viral Suppression", May 31 – June 1, 2016: This closed meeting was an opportunity for national, provincial, district and development partners to showcase innovations, best practices and lessons learned that have assisted in partners achieving the 90-90-90 goals in South Africa. The meeting was hosted by NDOH and PEPFAR. The project manager and a COMAPP professional nurse attended this meeting. PopART Intervention staff, Blia Yang & Kerry Nel who presented on the progress of the PopART trial and lessons learned. Meeting with Dr Anne Stangl (International Center for Research on Women) in Baltimore, USA June 7-9, 2016: Dr Stangl is a co-Investigator (along with Dr James Hargreaves (London School of Hygiene and Tropical Medicine), Dr Virginia Bond (ZAMBART) and Graeme Hoddinott (DTTC)) on HPTN 071a, an ancillary study to HPTN 071 (PopART) evaluating associations between HIV-related stigma and the implementation of the 'Universal Test and Treat' strategy for HIV prevention. Graeme Hoddinott discussed planned study outputs from baseline data collection (July 2014 – April 2015) as well as refining the design for qualitative data collection (see qualitative-cohort below).

HPTN Annual Network Meeting, June 10-15, 2016: Held in Washington DC attended by PopART staff (Dr Peter Bock, Blia Yang, Graeme Hoddinott, Nozi Makola, , Nomtha Mandla, and a community member Daniel Mpongoshe). The annual meeting discussed HPTN 071 (PopART)'s progress and strategies to improve retention in the Population Cohort and strategies to improve the delivery of the Intervention.

Initial discussion about future collaborations for social science/implementation evaluation between DTTC and TB/HIV Care with Anna Versfeld June 23, 2016: Anna Versfeld has recently been appointed to lead social science implementation evaluations with TB/HIV Care. This meeting served as a starting point for discussing potential points of collaboration with DTTC in moving this agenda forward.

<u>Revision of WHO interim guidance on Bedaquiline and Delamanid update (Geneva)</u> June 28 - 29, 2016: Anneke Hesseling participated as paediatric TB expert.

<u>HIV Testing Service Policy Orientation Workshop July 12-13, 2016</u>: Facilitated by the Western Cape Government Department of Health and PEPFAR held at the Fountains Hotel, Cape Town. The new policy is now aligned to the WHO guidelines and the 90-90-90 goals. The following were discussed at the workshop: change in HIV testing algorithm, emphasis on couples counselling, emphasis on children being tested, and offering a holistic care package when providing HIV testing services which include screening for non-communicable diseases. Attended by the PopART Intervention team: Jacque Hlalukana, District Manager, Zimasa Gcwabe, Nurse Site Manager

PopART Intervention Adolescents Study Advisory Group Workshop July 12-13, 2016: Facilitated by ZAMBART (Zambia AIDS Related TB Project) and DTTC held in Lusaka, Zambia. The workshop identified youth specific interventions required to increase the uptake of the PopART Intervention in Round 3 of the HIV trial. The workshop was attended by members from the Ministry of Health in Zambia, the Western Cape Government Department of Health, the City of Cape Town Health Directorate, UNICEF, USAID, CDC, and PEPFAR implementing partners, civil societies, and adolescents from both Zambia and South Africa. Attended by the PopART Intervention team.

PopART for Youth (P-ART-Y) Study Advisory Group (SAG) meeting in Lusaka, July 12-13 2016: The study advisory group meeting was well attended by various stakeholders from the department of health in Zambia and South Africa, implementing partners, academic institutions and civil society organizations. Four members of the South African Adolescent Community Advisory Board (ACAB) also attended the meeting and gave their inputs to discussions around optimizing the existing PopART intervention for adolescents. The meeting was well received by attendees and the working groups developed several strategies for implementing adolescent focused study optimizations that will commence in November 2016. These outcomes were documented in a SAG report and distributes to all meeting attendees.

<u>TB Think Tank National TB Strategic planning meeting July 13, 2016</u>: Anneke Hesseling participated via webex and Pren Naidoo travelled to Johannesburg for the TB Think Tank National TB Strategic planning meeting : 2017 – 2021.

The TB Think Tank meeting, July, 17, 2016: attended by Anneke Hesseling and the Social Science team met with the team from THINK in Pietermaritzburg to evaluate their initial experiences in doing the PHOENIX pilot work.

<u>PACK Child TB clinical working group meeting July 22, 2016:</u> Karen du Preez and Anthony Garcia-Prats attended at the UCT Lung Institute.

<u>Western Cape PEPFAR Partners Meeting, August 1-2, 2016</u>: The meeting invite was received from the PEPFAR Liaison Officer. All PEPFAR Partners were to present on their projects and the 2015/16 work plan to the Western Cape Provincial district manager. The Project Manager attended the meeting and presented the COMAPP Work plan.

<u>Stellenbosch University Academic Day, September 11, 2016</u>: The following PopART Intervention staff members presented on research posters:

- Francionette Esau *et al*: Lessons learned with the implementation of household TB screening, diagnosis, and initiation of TB treatment in HPTN 071 (PopART) Intervention South Africa
- Sandra Grunewald *et al:* Collaboration with supporting partners to link and retain HIV+ children into HIV care in Wellington, Western Cape Province, South Africa
- Jerry Molaolwa *et al*: Lessons learned with the use of a handheld Electronic Data Capture Device (EDC) during clinical trials.

COMAPP staff poster presentations:

- Leandie September, Margaret van Niekerk, Sue-Ann Meehan entitled: "Working towards increasing the number of HIV-infected people who know their status in Cape Town South Africa. Learning from two innovative community-based HIV counselling and testing strategies!"
- Vuyiswa Ndudana, Margaret van Niekerk, Sue-Ann Meehan entitled: "Describing demographic and clinical characteristics of HIV positive clients who link to care from 5 Community-based HIV Counselling and Testing sites in Cape Town, South Africa".

<u>Evidence for HIV Prevention in Southern Africa (EHPSA) workshop to develop Stakeholder</u> <u>Engagement Plan for PopART for Youth (P-ART-Y) study September 19-22, 2016</u>: Graeme Hoddinott and Constance Mubekapi-Musadaidzwa (DTTC) met with EHPSA facilitators and collaborators from ZAMBART (Dr Kwame Shanaube and Dr Musonda Simwinga) in Johannesburg to develop the study stakeholder engagement plan. After the meeting EHPSA indicated that they were very impressed with the resultant plan and would like to use it as a model (with our participation) for other projects EHPSA supports.

The 10th International Child TB Training Course, September 25-30, 2016 was held at the Goudini Spa Resort, Worcester. Simon Schaaf and Anneke Hesseling were the convenors with James Seddon, a clinical lecturer, from the Imperial College, London, invited as the keynote speaker. This year the course was extended by an extra day for the first time to 4 full days to include more focus on MDR-TB. There were 48 participants from 14 countries, including 14 South African participants of which 10 were sponsored through the NRF Knowledge, Interchange & Collaboration (KIC) funding secured this year. This year DTTC paediatric clinician, Sue Purchase attended. Elin Svensson and Thomas Dorlo from Uppsala University, Sweden, were invited to visit as observers. The course is Stellenbosch University accredited. Good reviews were received from participants.

Western Cape Provincial Health Research Committee (PHRC) in conjunction with the Directorate: Health Impact Assessment (HIA) hosted the 2016 Provincial Research Day on November 4, 2016 with the theme for this year being, "The First 1000 Days". Paediatric clinicians, Lienkie du Plessis and Adrie Bekker were invited to present. (Lienki du Plessis presented the KDH Audit and Adrie Bekker presented her Infant PK work.)

PopART for Young people (P-ART-Y), November 6-11, 2016: The Adolescent CHAMPIONS responsible for the values clarification component of the P-ART-Y study travelled to Lusaka, Zambia to meet with the their counterparts at ZAMBART – the institution delivering the sister component of the P-ART-Y and HPTN 071 (PopART) studies. This was an opportunity to exchange training material and learn from each other. Each country was able to deliver their training material. In addition, the Adolescent CHAMPIONS were taken on a door-to-door testing visit in the Zambian communities. This provided insight for the Adolescent CHAMPIONS on the experiences of CHiPs delivering the PopART intervention package to adolescents in Zambia.

World Health Organisation Paediatric Antiretroviral Drug Optimization (PADO) meeting Geneva December 6-8, 2016: Tony Garcia-Prats attended to promote paediatric TB focus.

<u>MMC revitalization workshop December 12-14, 2016</u> – The workshop was held at Lord Charles Hotel, Somerset West. The National Department of Health (NDOH) and Western Cape Department of Health (DOH) facilitated the workshop. The purpose of the workshop was to capacitate the Provincial and district Medical Male Circumcision (MMC) personnel with skills and knowledge on how to: 1) Improve the quality of MMC service delivery, 2) Effectively facilitate and coordinate demand creation activities for MMC, 3) Manage MMC service delivery performance in facilities and adequately report such performance on a monthly basis, 4) Collectively (both province and districts) improve the robustness of the

FY16/17 and FY 17/18 MMC provincial micro plans so that they are completed correctly, are effective, measurable, and aligned to the provincial business plans and quarterly performance monitoring requirements.

<u>Cape Town Metro "90-90-90" steering committee meeting, December 13, 2016:</u> Sue-Ann Meehan attended. This committee coordinates the Metro's response to the HIV 90-90-90 target, set by UNAIDS.

MEDIA COVERAGE DURING 2016

DTTC featured in 2 printed media articles, 1 radio interview and 1 television broadcast through contributions by Anneke Hesseling, Tony Garcia-Prats and Pren Naidoo:

Afternoon Express - SABC 3 - 23 Mar 2016 16:52 - Duration: 00:06:13

AVE: R 99 466.67 - Audience: 531 48739427392Text - Playback Allocated to: Faculty of Medicine and Health SciencesDesmond Tutu TB Centre's Dr Pren Naidoo talks about this month's World TB Day.Afternoonexpress.co.za- Afternoon Express - 23 Mar 2016 - No Bylinehttp://www.afternoonexpress.co.za/guests/dr-pren-naidoo-/1606AVE: R 3 709.8639428269Text Allocated to: Faculty of Medicine and Health Sciences

Cape Argus (AM Edition) - p.2 - 24 Mar 2016Sipokazi Fokazi Fokazi Health WriterSipokazi.Fokazi@Inl.Co.ZaAVE: R 38 873.43 - Circ: 30 484 39431590JPG - PDF - Text Allocated to: Faculty of Medicine and Health Sciences, Research,Management Dosage study to boost TB treatment

Star - p.13 - 24 Mar 2016Vuyo Mkize Vuyo.Mkize@Inl.CoszaAVE: R 41 816.93 - Circ: 84 77239432426JPG - PDF - Text Allocated to: Faculty of Medicine and Health Sciences, Research Shorter,
sweeter plan for TB children

Cape Talk - 24 Mar 20:30 with Gugu Mhlungu and Sizwe Dhlomo

VISITORS DURING 2016

<u>Paediatrician, Dr. Vera Golla, from Germany</u> arrived at DTTC August, 3 2015 and completed a publication under the mentorship of Simon Schaaf and Anneke Hesseling. She returned to Germany March 31, 2016.

Dr Lindsey Reynolds, Brown University, USA visited the PopART team January 11–15, 2016.

Ab Schaap, Statistician and Data Manager of ZAMBART and PopART from Zambia and Sian Flloyd, Statistician from the London School of Hygiene & Tropical Medicine visited the PopART team, February 8-12, 2016.

Dutch undergraduate medical student, <u>Ndidi Obihara, from Radboud University, Netherlands</u>, arrived January 18, 2016 and stayed until April 15, 2016 for a mentorship programme under the leadership of Simon Schaaf and Anneke Hesseling.

The paediatric team hosted <u>Leander Grode and Julia Knaul from VPM, Germany</u> March 15, 2016.

<u>CDC Financial and administrative Audit visit</u>: March 16 -17 2016. 2 Delegates from CDC (Michelle Smith and Joan Rangwaga) visited SU to audit the Grant GH000320. Overall positive feedback.

<u>Visit from FHI360/HPTN Core Communications team</u>, March 30, 2016: Eric Miller and Kevin Bokoch from FHI360 in Durham, North Carolina, USA visited PopART in the field and shadowed the teams in the sites to see what additional communication documents are needed.

<u>Visit from SCHARP</u>, March 30 – April 1, 2016: SCHARP (Statistical Centre for HIV and AIDS Research and Prevention) from Seattle, Washington, USA visited the HPTN 071 (PopART) team. The team was here to assist with data enquires in the field and provide support for trouble shooting.

The paediatric team received the paediatric HIV/TB expert team <u>from the Karolinska</u> <u>Institute, Sweden</u> April 13, 2016 at BCH and Elisabetta Walters and the Diagnostics team hosted them at G-Ground, TBH April 14, 2016.

<u>Visitors from CDC and USAID visit to HPTN 071 (PopART) Intervention South Africa</u> May 9, 2016: Dr Nancy Knight, CDC Country Director, South Africa, Steve Smith, US Health Attache, and Kerry Pelzman, USAID Health Director, South Africa visited community SA16 to see the progress of an Arm A site (ART irrespective of CD4 count) and the ART adherence clubs. The visit was facilitated by Professor Nulda Beyers, Principal Investigator.

<u>Elana Roberts, TB Alliance</u> met with Anneke Hesseling at the BCH PK unit to find out more about paediatric TB formulations and other needs on May 11, 2016.

<u>Rosemary Reyes of Otsuka visited the PK Unit</u> May 10-13, 2016 with the Otsuka 232/233 study team.

Dr Jyothi Chabilall, the new Doctoral Head of Faculty, met with Masters and PhD students at DTTC on May 19, 2016.

<u>CDC Close-out and Quarterly site Visit</u> May 25-26, 2016: COMAPP was visited by the CDC Activity manager (Ms Hilda Maringa), CDC Close-out officer (Ms Jane Shaba), Branch Chief CDC (Mr Cole Gbolahan) and Headquarters visitor from CDC Atlanta (Mr Hussain Baseer). The

meeting encompassed all the relevant information for a successful close-out of Grant No: GH000320.

<u>US Congress visit to HPTN 071 (PopART)</u> May 31, 2016: A group of 25 delegates from the United States (Congress, Senators, Representatives, PEPFAR, and USAID) lead by Senator Lamar Alexander who sits on the committee for OGAC (the Office of Global AIDS Coordinator) visited the HPTN 071 (PopART) study team. PopART staff (Dr Kerry Nel, Blia Yang, Nomtha Mandla, Constance Mubekapi-Musadaidzwa) presented on the progress of the PopART trial and had a demonstration of what the field staff do daily out in the communities. There were testimonies from community members of the impact of PopART within their communities.

<u>Dr. Roosa Sloot</u>, post-doctoral student from the Netherlands, joined the Centre from July 2016 for approximately 2 years.

<u>Prof Frank Cobelens;</u> clinician and TB epidemiologist from the Netherlands, visited the paediatric PK Unit at BCH July 13, 2016.

<u>Professor Rada Savic</u>, Mathematical modeller and pharmacologist, visiting from the UCSF, presented, 'Optimizing TB treatment in children using pharmacokinetic-pharmacodynamic modelling', at the CTU Academic meeting July 21, 2016.

<u>Mhleli Masango from the Shandukani site</u> visited DTTC offices and the site offices with Laing from the Social Science Team August 11, 2016.

Leander Grode and Julia Knaul of VPM, Germany, visited the Centre August 23, 2016.

Abeda Williams, Johnson and Johnson visited Anneke Hesseling, September 6, 2016.

Helmuth Reuter and Eric DeCloedt, Phamacokinetic Unit and Rene Jansen, TASK Pharmacy visited DTTC September 7, 2016.

Dr. Kwame Shanaube (P-ART-Y study Primary Investigator in Zambia) and Conred Jeni (P-ART-Y Study coordinator in Zambia) visited Cape Town to attend the EHPSA technical forum and to meet with the P-ART-Y team to discuss future spaces events and plan for the Arm C survey in 2017, September 19 -22, 2016.

James Seddon, Imperial College London, visit the Centre and the paediatric group, after the Goudini course, October 2016.

<u>Dr Watsamon Nattawan and Dr Nattawan Thepnarong, Chulalongkorn University, King</u> <u>Chulalongkorn Hospital, Bangkok, Thailand</u> attended the Goudini course and visited the CTU for 3 months as guests of FAM-Cru from October 2016.

<u>Dr. Elin Svensson from Uppsala University</u>, visited the Centre October, 14, 2016 to present at the Academic Meeting, "Bedaquiline's pharmacokinetics, extrapolation to children and a little bit of exposure-response", and also spent 2 days at the 10th International Child TB Training Course.

USAID ANOVA Visit – PEPFAR USAID visited HPTN 071 (PopART) Intervention for a field visit, October 20–21, 2016: HPTN Leadership and Operations Centre (HPTN LOC)/Family Health International (FHI360) Visit to HPTN 071 (PopART) Intervention Visitor: Sam Griffiths – HPTN LOC/FHI360: Durham, North Carolina, United States of America.

Akbar Shahkolahi and Zurayda Hendricks from ACTG (USA) visited the PK Unit at BCH October 27, 2016.

<u>Office of Global AIDS Coordinator (OGAC) Visit to HPTN 071 (PopART) Intervention Visitors</u> October 31, 2016: Mike Gilbreath – NIAID; Nareen Aboud – OGAC; Steve Smith – US Health Attaché; Saira Qureshi – OGAC; Jacqueline Burgess – PEPFAR CDC Visit to a PopART Intervention community, Dalevale. The visitors went to Dalvale to see CHIPs conduct homebased HIV counselling and testing and linkage to HIV care. Visitors: Hilda Maringa - Public Health Specialist, Youth Lead Prevention Center for Disease Control & Prevention South Africa, Michelle Smith - Center for Disease Control, Saira Qureshi - Interagency Collaborative for Program Improvement (ICPI) Technical advisor

Zambart (Zambia AIDS Related TB Project) Visit November 2-4, 2016 to HPTN 071 (PopART) Intervention – Delft South, Luvuyo and Ikhwezi. Benchmarking and comparisons between ZAMBART and PopART. Visitors: Stable Besa; Ephraim Sakala.

<u>Dr. Musonda Simwinga from ZAMBART in Lusaka, Zambia,</u> November 23-27, 2016: the P-ART-Y study team to observe the P-ART-Y Futures' Spaces events and provide feedback on their continued improvement and to facilitate the DTTC Community Advisory Board Strategic Workshop, November 25 -26, 2016.

Families Matter Program (FMP) was visited by the <u>COMAPP CDC Activity Manager (Hilda</u> <u>Maringa) and two delegates from the National office for Social Development</u> in November 2016. The purpose of the visit was to discuss handover of equipment to DSD, who will implement FMP in South Africa and an introductory meeting with the local NGO in Nyanga who was the partner organization delivering the Families Matter Program.

The paediatric team hosted visitors November 21, 2016 from Otsuka Inc, led by Dr. Jeff Hafkin for the Otsuka 232 and 233 trials.

<u>The IMPAACT Lab team</u>, December 9, 2016: visited Anne-Marie Demers and Anneke Hesseling at the BCH paediatric PK unit.

EMPLOYEES Staff appointments

Table 1 Table of new staff appointments January to December 2016

Person Name	Employee	Hire Date	Study/CF	Number	Study/C	P Number	Study/C	P Number	Study/CP Name
Isaacs, Jovan	Number 16242386	01-Jan-16	100%	54593	,				PopART FHI 360
Naidoo, P	15463087	01-Jan-16	100%	B760					ORAP
Mubekapi-Musadaidzwa, C	20574274	01-Jan-16	90%	54593	10%	54526			PopART FHI 360/Stigma
V Nohiya	20484526	01-Feb-16	100%	54593					PopART FHI 360
SM Ntloko	18772692	01-Feb-16	100%	54522					PopART CDC
Khaile, PA	20656130	01-Feb-16	100%	54522					PopART CDC
Mzakwe, M Kiva, A	20492703 20666357	01-Feb-16 01-Feb-16	100% 100%	54593 54593					PopART FHI 360 PopART FHI 360
Zono, H	20667094	01-Feb-16	100%	54593					PopART FHI 360
Petse, NJ	20666691	01-Feb-16	100%	54593					PopART FHI 360
Mbina, E	20666403	01-Feb-16 01-Feb-16	100% 100%	54593 54593					PopART FHI 360 PopART FHI 360
Mgemane, YS	20666721	01-Feb-16	100%	54595					POPART PHI 360
Ndaba, F	14738015	01-Mar-16	100%	54593					PopART FHI 360
Mdingi, C Mdedetyana,LS	20672179 20672187	01-Mar-16 01-Mar-16	40% 20%	54593 54593	60% 20%	54526 55987	60%	54526	PopART FHI 360/Stigma PopART FHI 360/BMRC/Stigma
Brown, R	16233530	01-Mar-16	20%	54593	60%	55987	20%	54526	PopART FHI 360/BMRC/Stigma
De Villiers,L	15427617	01-Mar-16	20%	54593	20%	55987	60%	54526	PopART FHI 360/BMRC/Stigma
Hishikana I	20919174	01 Apr 16	100%	54522					BanABT CDC
Hlalukana, J	20313174	01-Apr-16	100%	54522					PopART CDC
Mac Pherson, J	21092397	01-May-16	100%	55811					Paediatrics
Arendse, JJ	16787490	01-May-16	100%	54594					Paediatrics
Plaaitjies, RE Awoniyi, D	21097550 16215915	01-May-16 01-May-16	100% 100%	54593 54593					PopART FHI 360 PopART FHI 360
Dlani,N	21098247	01-May-16	100%	54522					PopART CDC
Severa D	20402000	01 5 12	100%	E4500					
Sayers, R Mohononi, MN	20493622 21252637	01-Jun-16 01-Jun-16	100% 100%	54593 54593					PopART FHI 360 PopART FHI 360
Jooste, AL	17003164	01-Jun-16	100%	54593					PopART FHI 360
Hlomendini, LD	16795199	01-Jun-16	100%	54522					PopART CDC
Wolmarans, JJ	21253285	01-Jun-16	100%	54473					COMAPP
Jokani, B	21245029	01-Jun-16	100%	29434					Paediatrics
Saul, R	21362807	01-Jul-16	100%	55811					Paediatrics
Mbamba, A	17391660	01-Jul-16	70%	54593	10%	55852	20%	54526	PopART FHI 360/BMRC/Stigma
Batist, E	17436877 18832016	01-Jul-16 01-Jul-16	100% 100%	55987 54593					Re-appointment, Paediatrics
Fonk, N Gebenge, K	19839375	01-Jul-16	100%	54593					PopART FHI 360 PopART FHI 360
Yalezo, S	21365334	01-Jul-16	100%	54473					COMAPP
Id and Al	21395594	01.0	400%	55044					De e distris e
Kay, N Gwaxulu, L	19633033	01-Aug-16 01-Aug-16	100% 100%	55811 55986					Paediatrics Re-appointment, Paediatrics
Bonene, N	19701055	01-Aug-16	100%	54593					PopART FHI 360
Jantjies, M	14496038	01-Aug-16	100%	54593					PopART FHI 360
Zono, H Klaas, A	20667094 19590490	01-Aug-16 01-Aug-16	100% 100%	54593 54522					Re-appointment - PopART FHI 360 Re-appointment - PopART FHI 360
Nkalitshana,NA	19390490	01-Aug-16	100%	54522					Re-appointment - PopART FHI 360
Jackson, E	21395632	01-Aug-16	100%	54593					PopART FHI 360
Sishuba-Zulu, M	14686414	01-Aug-16	100%	54522					PopART CDC
Te Roller, A	13476823	01-Aug-16	100%	54522					PopART CDC
Mahlaba, P	21399131	01-Aug-16	100%	54522					PopART CDC
Madabane, P	21399077	01-Aug-16	100%	54522					PopART CDC
Ntsimbi, N	21398569	01-Aug-16	100%	54522					PopART CDC
Gebenga, K	21399190	01-Aug-16	100%	54522					PopART CDC
Moatglidi, T Tom, A	21398968 21396035	01-Aug-16 01-Aug-16	100% 100%	54522 54522					PopART CDC PopART CDC
Sopapaza, N	21398992	01-Aug-16	100%	54522					PopART CDC
Kunju, Z	21399042	01-Aug-16	100%	54522					PopART CDC
Siboto, T	19452306	01-Aug-16	100%	54522					PopART CDC
Mbolekwa, P	21395676	01-Aug-16	100%	55811					Paediatrics
	45044747	01 T	10.55						B
Gamka, N Mlandaza, N	15844714 21467315	01-Oct-16 01-Oct-16	100% 100%	54593 54593					Re-appointment - PopART FHI 360 PopART FHI 360
Mlandezo, N Niekerk, A	18769993	01-Oct-16 01-Oct-16	50%	54593	40%	55987	10%	55981	Paediatrics
Julius, RL	21467358	01-Oct-16	100%	54473		50001	.0,0	50001	COMAPP
Maker, S	19703414	01-Dec-16	35%	55807	40%	55978	25%	55981	Re-appointment - Paediatrics
Scholtz, A	15197700	01-Dec-16	4000.						Re-appointment - PopART FHI 360
Jooste, A	17003164	01-Dec-16	100%	54593			L		
Van Deventer, A	15794172 19265867	01-Dec-16 01-Dec-16	100% 100%	54593 54522	+		L		Re-appointment PopART CDC
Esau, F Moalolwa, J	19265867	01-Dec-16 01-Dec-16	100%	54522 54522					Re-appointment PopART CDC Re-appointment PopART CDC
Saunders, Y	20536194	01-Dec-16	100%	54522					Re-appointment PopART CDC
Heneke, P	16386337	01-Dec-16	100%	54522	+				Re-appointment PopART CDC
Van Rensburg, G Mabenge, L	17989256 21514720	01-Dec-16 01-Dec-16	100% 100%	55852 54593	+				Re-appointment P-A-R-T-Y PopART PopART FHI 360
Adriaanse, MM	21514720	01-Dec-16	100%	54593	1				PopART CDC
Vusani, AM	18780784	01-Dec-16	100%	54522					PopART CDC
Velani, P	16173376	01-Dec-16	100%	54522					PopART CDC
Mankayi, S	18772730	01-Dec-16	100%	54522				-	PopART CDC
Posile, N	20957572	01-Dec-16	100%	54522	 				PopART CDC
Ngalo, BM	21514747	01-Dec-16	100%	54522	-				PopART CDC
Mashicolo, L	21514755	01-Dec-16	100%	54522					PopART CDC
Khau, V	21514763	01-Dec-16 01-Dec-16	100% 100%	54522 54522					PopART CDC
Nganase, N Koeli, M	21514739 21501610	01-Dec-16 01-Dec-16	100% 70%	54522 54593	20%	54526	10%	55852	PopART CDC
		01-Dec-16 01-Dec-16	70%	54593	20%	54526	10%	55852	
Pullen, L	15858472	01-Dec-10	1070	04000	2070	04020			
Pullen, L Herandien, T	21451303	01-Dec-16	70%	54593	20%	54526	10%	55852	
Pullen, L									

Staff Capacity building

The DTTC supported a total of 188 staff members in capacity building during 2016. The broad categories of training include skills training (145 staff), leadership training (26 staff), short courses (13 staff) and formal qualifications (3 staff). As per DTTC policy Good Clinical Practice training was attended by 25 new staff members and 66 staff members received refresher GCP training. As part of the safety and security portfolio, 25 staff members who either transport patients, staff or travel for study purposes in informal areas, attended an advanced driving course. All attendees completed the course successfully. Figure 3 below depicts other training courses attended by DTTC staff. Both HPTN071 (PopART) costpoints funded by the National Institutes of Health and the Centre of Disease Control, respectively supported the majority (75%) of this capacity building financially. In addition, 171 staff members attended SETA training courses hosted by Stellenbosch University.



Figure 4 Staff capacity building by course completed

DTTC GOVERNANCE

DTTC Executive Committee (ExCo)

The DTTC is governed by its Governing Board, as per its constitution. A new governing board was elected in February 2017, chaired by Professor Andrew Whitelaw, Dept Medical Microbiology and NHLS, Tygerberg; vice-chair: Professor Wolfgang Preiser: Division Head: Medical Virology.

The daily governance of the DTTC is fulfilled by the ExCo. All members of the ExCo committee play an active role in the management of DTTC, making key decisions to ensure the vision and mission of DTTC are maintained and expanded Members also form part of the scientific strategy team and are responsible for driving the research agenda at DTTC forward, in line with the 3 DTTC research pillars. The role of this team is to provide scientific input into research ideas put forward to the team and collaborate on potential research proposals.

The DTTC Exco meets every 2 weeks. In addition, there is a dedicated 2 hour scientific strategy meeting convened once a month for the ExCo and additional *ad hoc* member to discuss and plan ongoing and future research priorities and strategies.

NAME	ROLE	RESPONSIBILITY
Prof Anneke Hesseling	DTTC Director and chair of DTTC ExCo	DTTC director; director: paediatric TB studies
Dr Tony Garcia- Pratts	Medical director of the Desmond Tutu TB Centre Brooklyn Chest Hospital Paediatric Pharmacokinetics Unit Principle investigator IMPAACT TB Scientific committee mentored investigator Co-investigator in the newly funded Desmond Tutu TB Centre IMPAACT CRS (site 31790)	Responsible for supervising the clinical care of participants and effective implementation of ongoing trials, as well as supervising the site staff of 15 and overseeing the general functioning of the research unit. Leading two large observational cohort studies evaluating the pharmacokinetics and safety of the second-line TB medications in children. Supporting/Co-supervising two and master's students.
Dr Marieke van der Zalm	Clinical Researcher Paediatric studies Principle investigator Career- development grant of the EDCTP	Lead Clinician of the SHINE study, which is a multi-centre TB treatment shortening study with the DTTC being the only South African site. The Principle investigator assumes overall responsibility and accountability for the efficient planning, implementation and evaluation of the project, ensuring contractual obligations to all stakeholders within the regulations of Stellenbosch University

Table 2 .DTTC Executive	Committee Roles and	Responsibilities
Tuble 2 ib i i c Laccutive	committee noies and	Responsionnes

Dr Frieda Verheye-	Regulatory Coordinator	Coordination of all IMPAACT related activities, with
Dua		extensive quality assurance and regulatory oversight of all clinical trials conducted under the IMPAACT trial network auspices. Ensures that general and study-specific regulatory- related processes for NIH-funded and other clinical paediatric studies comply with the standard operating procedures (SOPs) as well as the requirements of ethics committees and sponsors, specifically the NIH-trials networks (IMPAACT) and other relevant trials. Interacts extensively with local academic and non- academic stakeholders, and at a very high level with international stakeholders' including the NIH, international regulatory agencies, and international trial networks and investigators.
Prof Simon Schaaf	Lead investigator Paediatric studies	MDR-TB clinical care and research; core member of IMPAACR CRS, clinical and scientific advisor
Dr Pren Naidoo	Principle investigator Operational Research	Principle investigator on PROVE-IT LPA study and completing PhD on impact assessment of molecular diagnostic tests for TB. Supporting/Co-supervising PhD and master's students. Undertaking analysis of 10-year national ETR dataset and supporting other researchers, including post-docs working on the dataset. Representing DTTC in national TB/HIV implementation science initiatives and the national TB Strategic Think Tank. (Co-chair of one of the working groups).
Sue Ann Meehan	Principal investigator HIV prevention project (funded by PEPFAR/CDC)	The Principle investigator assumes overall responsibility and accountability for the efficient planning, implementation and evaluation of the project, ensuring contractual obligations to all stakeholders within the regulations of Stellenbosch University. Current registered PhD student at SU.
Dr Peter Bock	Co-PI: HPTN 071 / PopART trial	The Principle investigator assumes overall responsibility and accountability for the efficient planning, implementation and evaluation of the project, ensuring contractual obligations to all stakeholders within the regulations of Stellenbosch University. Staff component of approximately 400 employees. Supporting/Co-supervising PhD and master's students. Current registered PhD student at SU.
Graeme Hoddinott	Senior Researcher Lead Social Scientist, DTTC Co-investigator Social science HPTN 071 PopART trial	The Principle investigator assumes overall responsibility and accountability for the efficient planning, implementation and evaluation of the project, ensuring contractual obligations to all stakeholders within the regulations of Stellenbosch University. Academic member of the Transdisciplinary Health and Development Studies postgraduate degree programme hosted between the Faculties of Medicine and humanities. Current registered PhD student in at UKZN.
Sterna Brand	Human Resources Manager	The HR Manager oversees HR functions at the centre and manages HR processes and procedures within the centre.

		The HR manager also oversees performance management and compliance and the development and retention of human capital.
Theo Smith	Logistics Manager	The Logistics Manager provides logistical support to the centre's central administrative hub, peripheral research sites and overall centre logistics. Duties include management of the following: overseeing vehicle fleet management and reporting, office space and rental agreements, on and off-site storage facilities, fixed asset management, purchase requisition authorisation and assets verification, quotations and tender management and overseeing the non-trial insurance portfolio of the centre.
Anelet James	Operations Manager	The Operations Manager provides operational, financial, administrative and technical support to the centre and its research and support staff. Core responsibilities include financial management, supporting manager centre operations and sample repository management. Current registered MBA student USB.

FINANCIAL INFORMATION

The information below will be updated once the audited financial statements for financial year ending 31 December 2016 are released by Stellenbosch University.

The DTTC received over R7.6 million in new grant funding in 2016, in addition to exisiting major awards with annual disbursements . The major funding stream for this year remained US Federal Funding mainly supporting the HPTN071(PopART) trial (Table 1). Table 1 below indicates the various countries currently supporting our research. All funding streams increased from 2015 to 2016 indicating a confidence in our research output by our various funders (see Appendix III for detail). A comparison between income of 2015 and income of 2016 by funding body for grant funding over/under R1 million is shown in Figures 2 and 3. Capital Expenditure remained relatively stable at approximately R1 million for each year.

Source Country		DTTC Income 2016			DTTC Income 2015
Asia, Industry	R	1 060 133.47	R	3	205 744.06
Europe	R	145 965.94	F	3	19 464.40
South Africa	R	3 654 044.89	R	3	1 867 506.59
UK	R	5 923 460.72	R	3	6 894 904.45
US Federal	R	103 081 938.28	R	3	76 897 242.97
US Other	R	2 449 800.23	R	3	353 651.74
Grand Total	R	116 315 343.53	F	२	86 238 514.21





Figure 5. DTTC Income for 2015 vs 2016 (Funding over R1 000 000)



Figure 6 DTTC Income for 2015 vs 2016 (Funding under R1 000 000)

RISK MANAGEMENT

In the light of dynamic political, economic and environmental changes both globally and locally, the DTTC Exo acknowledges that a risk management plan is required to identify and mitigate against any factors or changes that places on-going research activities and operations at risk. Therefore, a detailed risk assessment will be conducted and management plan developed. Apon approval of this plan by the DTTC governing board the results of the assessment and the plan will be included in our 2017 Summary Report.

ACKNOWLEDGEMENTS & FUNDERS



· -	stered Trainees:	-		
Name of	Current	Degree	Supervisor	Research Topic
trainee	position			
Megan	Research	MPH (UCT))	Robert	Validity of chest radiographic
Palmer, MD,	paediatrician		Gie,	reading methods in children with
FCP			Anneke	suspected TB
			Hesseling	
Heidi van	Research	MSc Clin Epid	Anneke	Effect of TB on risk of atopy in
Deventer,	medical	(SU)	Hesseling	children
MD	officer			
Celeste de	Research	MPhil Bioethics	Lyn Horn	Ethics of postmortem studies and
Vaal, MD,	medical	(SU)		notifiable diseases including TB
DCH	officer			
Louvina van	Research	MPhil Clin	Anneke	MDR-TB in HIV-infected children:
der Laan,	medical	Pharm (UCT)	Hesseling	drug drug interactions and safety
MD	officer			
Jana	Research	MPhil Clinical	Tony	Pharmacokinetics and safety of
Winckler,	medical	Pharm (SU)	Garcia-	high-dose INH in children with
MD	officer		Prats	MDR-TB
Catherine	Research	MPH (UCT)	Anneke	Effect of HIV exposure on risk of TE
Wiseman,	medical		Hesseling	infection in infants in high-burden
MD	officer		_	communities
Anelet	DTTC	MBA (USB)	ТВА	TBA 2017
James, MSc	operations			
Microbiology	manager			
Elizabeth	Study	MPhil in HIV	Frieda	HIV-related stigma among HIV-
Batist, MPh	coordinator,	management	Verheye-	positive men who have sex with
	TB-CHAMP	(SU)	Dua	men
Thando	Research	MPhil in HIV	Dr C Clive	Health Care workers' experiences
Wonxie,	Intern	management		on HIV testing
PGD.		(SU)		
Chulumanco	Research	MA (NMMU)	Jenna	Vulnerabilities of small scale citrus
Mdingi, BA	Intern		Larsen	farmers in Ngqushwa.
Hons.				
Rosemary,	Social science	MSocSc (UKZN)	Nicholas	Participation in an early
Brown, BA	research		Munro	intervention programme, social
(Hons)	officer			support and parental stress in
				parents of deaf children
Jabulile,	Social science	Mphil	ТВА	
Baleni,	research	Transdisciplinary		Incarceration and HIV/TB service
BPsych	officer	Public health		access 11.

			1	1
		and development studies (SU)		
Thomas,	Social science		Dr Cherrel	The role of faith-based
Angilique, BA	research	Master's Politics	Africa	organisations on reducing crime
(Hons)	officer	(UWC)		and violence on the Cape Flats
Lubabalo,	Social science	Master's	Dr Sashimi	Medical Circumcision: tradition or
Mdedetyana,	research	Anthropology	Mfecane	transformation
BA(Hons)	officer	(UWC)		
			Thomas	Politics and performance of a
			Cousins	literacy intervention in Cape Town:
Gabriela	Social science			School libraries and the new
Carolus, BA	research	Master's		subjection of volunteerism.
(Hons)	officer	Sociology (SU)		
Christopher	Medical	MSc Epid (SU)	Pren	Has the use of Xpert ^R MTB/RIF
Mahwire,	officer, DOH		Naidoo	diagnostic assay improved MDR-TB
MD				treatment success rates in KwaZulu
				Natal?
Marcel	Student	MSc Epid (SU)	Pren	Did the introduction of an Xpert
Kanyinda			Naidoo	MTB/RIF-based algorithm increase the
Kitnge				proportion of bacteriologically
				confirmed PTB cases in Cape Town: An
Lenny	Senior TB	MSc Clin Epid	Pren	Interrupted Time Series Design?"
Naidoo, MD	Medical	(SU)	Naidoo	
	Officer, CoCT	(50)	Anneke	Operational implementation of MDR-
	onicer, cocr		Hesseling	TB prevention in a community-based
			Simon	clinical trial
			Schaaf	
Dawood da	TB Medical	MSc Epid (SU)	Simon	Operational implementation of
Costa	Officer, CoCT		Schaaf	bedaguiline for MDR-TB treatment in
			Anneke	routine programs of Cape Town
Sue	Research	MSc Epid (SU)	Hesseling Simon	
Purchase,	Medical		Schaaf	Operational implementation of
MD, DCH	Officer		Anneke	treatment of MDR-TB prevention in a
			Hesseling	community based clinical trial
Currently regis	stered PhDs			
Adrie	Neonatologist,	PhD (SU)	Anneke	
Bekker, MD,	Research		Hesseling	Prevention and treatment of maternal
FCP	fellow		Simon	and infant TB in the HIV era
	Decearch		Schaaf	Novel approaches to diagnosis of
Elisabetta	Research	PhD (SU)	Anneke	Novel approaches to diagnosis of TB in children
Walters, MD,	paediatrician		Hesseling	r b in children

MMed			Robert Gie	
Peter Bock, MBChB (UCT), MRCP (UK), MRCGP (UK) MPH (UCT)	Specialist Family Physician Co-PI: PopArt	PhD (SU)	Nulda Beyers, Sarah Fidler (Imperial College)	The impact of POPART intervention on the mortality and AIDS related morbidity amongst HIV positive adults in South Africa
Nomtha Mandla, Physio	Project manager: PopArt	PHD (SU)	Lungiswa Nkonki	Recruitment, participation and retention of research participants in the HPTN 071 Population Cohort, South Africa.
Florian Marx, MD*	Research fellow	PhD (SU)	Nulda Beyers Ted Cohen	Mathematical modelling to project the impact of interventions targeted to individuals previously treated for TB on the trajectory of the TB epidemic in high-burden settings"
Sue-Ann Meehan, MA (Research Psychology)	Senior researcher, CoMAP PI	PhD (SU)	Nulda Beyers Ronelle Burger	The contribution of a community based HIV counseling and testing initiative in working towards increasing access to HIV counseling and testing in Cape Town, South Africa.
Graeme Hoddinott, MSocSc	Lead social scientist	PhD , University of KwaZulu- Natal	Mary Van Der Riet Peter Rule	Toward a conceptual model of 'the act'; an exercise in theory- generation in the problematic space of school-based HIV prevention through behavior change intervention
Martina Mchenga, MPhil	PhD student	PhD (SU)	Ronelle Burger	Vulnerable households and health: evidence from surveys in South Africa and Malawi"
Rory Dunbar, MSc	Senior data manager	PhD (SU)	Nulda Beyers Pren Naidoo	Operational modelling to optimise the impact of Xpert MTB Rif on TB and MDR-TB yield and costs
Pren Naidoo, MD, MBA	Senior researcher, lead operational researcher	PhD (SU)	Nulda Beyers	Evaluating the impact of an Xpert® MTB/RIF- based TB diagnostic algorithm in a routine operational setting in Cape Town
Lario Viljoen,	Social science	PhD (SU)	Lindsey	Young women's sexual decision-

MA	researcher		Reynolds	making in the context of earlier ART-access
Sinazo, Nomsenge, MA	Social science research officer	PhD (RU)	Professor Monty Roodt	Relative impact of NGO- delivered/partnered school interventions to improve learning
Karen du Preez	Research paediatrician	Planned registration Q1 2017	Anneke Hesseling Pren Naidoo	outcomes in the Eastern Cape Epidemiology of TB in children in South Africa
Anthony Garcia-Prats, MD, Msc	Paediatric PI BCH PK Unit Medical Director	PhD (SU)	Anneke Hesseling Simon Schaaf	Optimizing and operatioanlizing MDR-TB treatment in children
Anne-Marie Demers, MD	Medical Microbiologist	PhD (SU)	Anneke Hesseling Andrew Whitelaw (NHLS)	Use of routine microbiology data in paediatric TB trials
Muhammad Osman, MD, Msc	Senior manager and medical officer, CoCT	Planned registration Q1 2017	Anneke Hesseling Pren Naidoo	Understanding TB associated mortality from routine data – incidence, predictors and mitigating factors
Post docs curr				
Marieke van der Zalm		Postdoc (SU)	Anneke Hesseling	Lung function and respiratory pathogens in children with suspected TB
Mareli Claassens		Postdoc (SU)	Nulda Beyers	Impact of HIV on TB outcomes and mortality
Jody Boffa		Postdoc (SU)	Anneke Hesseling Tony Garcia- Prats	Epidemiological comparison of MDR-TB in Cape Town and rural Kwa-Zulu Natal
Rosa Sloot		Postdoc (SU)	Pren Naidoo	Epidemiology – HPTN071(PopART)

DTTC FINANCIAL INFORMATION 2015 & 2016

			2016					2015				
Cost centre name S	Source		Opening Balance	DTTC Income 2016	Total Expenditure	Capital Purchases	Net surplus/ shortfall	Opening Balance	DTTC Income 2015	Total Expenditure	Capital Purchases	Net surplus/ shortfall
	CDC through Veterans Affairs subcon	IIS Federal	R 2 703 934.28	R 861 704.46	R 1874734.97	R -	R 1 690 903.77	R 2 315 036.97	R 3 073 303.00		R .	R 2703934.28
TBSC and P1108 and P2003 protocol chair (Hessel II		US Federal	R 7773.81	R 676 225.27	R 724 669.98			-R 36 435.97	R 498 397.12	R 454 187.34	R -	R 7 773.81
		US Federal	R 46751.76	R 547.66	R 63 804.52		R -16 505.10	R 657 063.59			R .	R 46 751.76
		US Federal	R 105 211.91	R 3142415.70	R 3 066 193.86		R 181 433.75	R 671 582.67	R 3 486 135.20			R 105 211.91
		Asia	R -51 086.07	R 1060 133.47	R 613 630.95		R 395 416.45	R -102 075.08				R -51 086.07
		US Federal	R 159 237.15	R 3762 983.76	R 3 805 622.72	R 326 536.74	R 116 598.19	R 93 599.01	R 3 286 833.73	101700.00		R 3 380 432.74
		US Other	R -30 776.87	R 267 975.82	R 277 080.57		R -39 881.62	R 3 580.30	R 173 421.03	R 207 778.20	R -	R -30 776.87
		South Africa	R 2 647 606.95	R 2 094 226.91	R 1878 960.49		R 2 862 873.37	R 1 280 693.94	R 1867 506.59			R 2 647 606.95
	BMRC	UK	R 4 772 206.26	R 3769460.05	R 777 271.49		R 7764394.82	R -	R 6 413 703.92			R 4772206.26
	BMRC	UK	R -60 189.91	R 2154 000.67	R 2 550 801.17	R 8 819.22	R -456 990.41	R -	R 481 200.53	R 541 390.44	R -	R -60 189.91
		US Federal	R -	R -	R -	R -	R -	R -	R -	R -	R -	R -
		India	R -541 989.02	R 196 627.48	R 443 828.87	R -	R -789 190.41	R -	R 180 230.71	R 722 219.73	R -	R -541 989.02
IMPAACT protocol-specific funds	NIH	US Federal	R 1 881.60	R 815 279.12	R 598 319.53	R -	R 218 841.19	R -	R 815 279.12	R 598 319.53	R 82 273.37	R 216 959.59
	NIH, NICHD	US Federal	R 177 642.63		R 4 412 275.77	R 100 825.67	R 162 535.93	R -	R 1 220 720.16	R 1 043 077.53	R 5767.30	R 177 642.63
IMPAACT P1106 co-chair support (Bekker)	IMPAACT, NIH	US Federal	R 19853.99	R 79 865.12	R 7 196.56	R -	R 92 522.55	R -	R 24 173.19	R 4 319.20	R -	R 19853.99
IMPAACT P2005 co-chair support (Garcia-Prats)	IMPAACT, NIH	US Federal	R -15 043.56	R 105 566.31	R 105 017.42	R -	R -14 494.67	R -	R 47 658.38	R 62 701.94	R -	R -15 043.56
General Research Fund	Diverse income	Diverse	R -3 363.76	R -2 114.47	R -116 714.13	R -54 884.06	R 111 235.90	R 53 049.83	R 28 734.88	R 85 148.47	R 54 884.06	R -3 363.76
NAV-KOMP S	Stellenbosch university	South Africa	R 127 734.34	R -	R 124 348.03	R 124 178.29	R 3 386.31	R -	R -	R -127 734.34	R -	R 127 734.34
HPTN071(PopART) Research Trial	NIH	US Federal	R -1 235 907.02	R 47 224 749.14	R 41763166.42	R 307 068.18	R 4 225 675.70	R -	R 31 627 252.62	R 32 863 159.64	R 358 120.63	R -1 235 907.02
HPTN071(PopART) Laboratory	NIH	US Federal	R -1 139 786.46	R 4 413.96	R 1908760.15	R 199 662.00	R -3 044 132.65	R -	R -	R 1 139 786.46	R -	R -1 139 786.46
HPTN071(PopART) Research Trial Intervention C	CDC	US Federal	R 460 329.00	R 35 196 143.68	R 35 396 787.11	R 81 572.52	R 259 685.57	R 280 327.20	R 30 462 728.55	R 30 282 726.75	R 205 755.09	R 460 329.00
HPTN071(PopART) Research Trial Stigma Study M	NIH	US Federal	R -153 248.93	R 2845975.47	R 2 913 709.51	R 2 086.50	R -220 982.97	R 194 129.72	R 2 354 761.90	R 2702140.55	R 261 037.32	R -153 248.93
HPTN071(PopART) Research Trial P-ART-Y N	NIH	US Federal	R -	R 2 377 157.43	R 1964753.27	R 98 369.91	R 412 404.16	R -	R -	R -	R -	R -
ACTG AM Demers A	ACTG	US Federal	R -	R 126 057.40	R 142 942.70	R -	R -16 885.30	R -	R -	R -	R -	R -
SARCHI Chair operational costs S	SA NRF	South Africa	R -	R 522 000.00	R 541813.32	R -	R -19 813.32	R -	R -	R -	R -	R -
SARCHI Chair - salaries S	SA NRF	South Africa	R -	R 977 817.98	R 1 174 297.70	R -	R -196 479.72	R -	R -	R -	R -	R -
DTTC ACTG PIF (A5300) II	IMPAACT, NIH	US Federal	R -91 375.17	R 1 146 739.29	R 1 073 950.98	R -	R -18 586.86	R -	R -	R 91 375.17	R -	R -91 375.17
Study 35 TBTC C	CDC Foundation	US Federal	R -	R 223 034.21	R 206 709.74	R -	R 16 324.47	R -	R -	R -	R -	R -
ACTG Chair AC Hesseling A	ACTG	US Federal	R -	R 96 458.89	R 102 899.73	R -	R -6 440.84	R -	R -	R -	R -	R -
OptiRif Kids T	TB Alliance	US Other	R -	R 1 863 830.13	R 325 684.93		R 1 538 145.20	R -	R -	R -	R -	R -
		Europe	R -	R 145 418.28	R 128 638.30	R -	R 16 779.98	R -	R -	R -	R -	R -
WHO Consultancy agreement V	WHO	US Other					R -					R -
NRF KIC Funding - Goudini course N	NRF	South Africa	R -	R 60 000.00	R 57 513.93	R -	R 2 486.07	R -	R -	R -	R -	R -
WHO FDC in Children V	WHO	US Other	R -	R 121 366.80	R 70 440.33	R -	R 50 926.47	R -	R -	R -	R -	R -

**The Microsoft Excel Workbook can be shared electronically