



**Western Cape  
Government**

Health

**COMMUNICATIONS/ PUBLIC RELATIONS  
DEPARTMENT**

Reference: **AR Template**

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# **DEPARTMENT OF PAEDIATRICS AND CHILD HEALTH**

**Annual Report for  
Tygerberg Hospital and  
Stellenbosch University 2019**

**HEAD OF DEPARTMENT  
REPORT COMPILED BY**

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<b>FAMILY CENTRE for RESEARCH with UBUNTU (FAMCRU): Director: Prof MF Cotton</b>	
<b>DESMOND TUTU TB CENTRE (DTTC): Director: Prof AC Hesselning</b>	

## EXECUTIVE SUMMARY – 2019

The inpatient admissions were stable at 15 265 in 2019 (9172 children admitted to general paediatrics and 6093 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 70% for highly specialized paediatric services.

Major infrastructure improvements were funded by the Tygerberg Hospital Children's Trust and included equipment to the value of R427 279,12 and upgrading of facilities to the value of R240 424,10.

Sixteen candidates were enrolled for their PhD degrees in 2019, while 7 MMed(Paed) students completed their Master's degree in paediatrics and 4 paediatricians qualified as subspecialists (gastroenterology, neurology, pulmonology and neurology). There were 146 peer reviewed articles by staff members.

Profs Anthony Garcia-Prats, Graham Hoddinott and Peter Bock were promoted to associate professor. Outstanding achievements included Prof Peter Hesselning receiving the Lifetime Achievement Award at the 51st Congress of the "Société Internationale d'Oncologie Pédiatrique" (SIOP) in Lyon, France and Profs Anneke Hesselning, Anthony Garcia-Prats and Adrie Bekker, received the UNITAID grant. The Tygerberg Hospital Board Team Recognition Awards were also awarded to Prof Adrie Bekker and Dr Gugu Kali (on behalf of the neonatal team) for their management of the CRE outbreak and the G-Ground team, Drs Liezl Smit, Sadia Murray, Andrew Redfern & Sr Dyk received the certificate for Innovation in patient flow management.

*Professor Mariana Kruger*

## Part 1

### RESOURCES AND OUTPUT

#### Human Resources

<u>Posts (full-time)</u>	<u>Number</u>	<u>Filled</u>
Executive Head of Department/ Chief Specialist	1	1
Head of Clinical Department/ Chief Specialist	1	1
Principal Specialists	5	5
Senior Specialists	25+1(5/8)	25+1(5/8)
Senior Registrars	14 (including 10 Supernumeraries)	14 (including 10 Supernumeraries)
*Registrars	49 (including 16 Supernumeraries)	49 (including 16 Supernumeraries)
Medical Officers	25	25
<b><u>Posts (sessional – hours per week)</u></b>		
Specialist	6 (72 hours)	6 (72 hours)
Number of beds	271	271

<b>Subspecialist Paediatrics</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Inpatients	6093	6269 (6.5%)	5885 (4.0%)
Outpatients	13679	13694 (-0.1%)	13721 (3.7%)
<b>Summary of Output General Paediatrics</b>			
Inpatients	9172	10847 (10.5%)	9810 (-0.9%)
Outpatients	12229 (-0.5%)	12921 (2.2%)	12637 (5.4%)

\*6 registrars are appointed respectively Worcester (2), Paarl (2), KBH (1), KH (1)

#### Output

#### SUBSPECIALIST PAEDIATRICS

##### Total patient admissions 2019 (Clinicom data)

<b>*A9 NICU</b>	<b>A9 PICU</b>	<b>A9 High Care</b>	<b>Trachea Unit</b>	<b>G1</b>	<b>G3</b>	<b>G9</b>	<b>G10</b>	<b>Total</b>
508	649	71	64	793	1348	1539	1121	<b>6093</b>

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

##### Bed Occupancy Rate 2019(Clinicom data)

<b>*A9 NICU</b>	<b>A9 PICU</b>	<b>A9 High Care</b>	<b>Trachea Unit</b>	<b>G1</b>	<b>G3</b>	<b>G9</b>	<b>G10</b>	<b>Total</b>
87%	94%	14%	52%	78%	77%	70%	86%	<b>70%</b>

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

#BOR low due to nursing staff shortages.

## Neonatology

Staff: Prof J Smith, A Bekker, Drs S Holgate, G Kali, JCF du Preez, H Hassan, L Van Wyk, L Lloyd; 5 Senior Registrars (4 supernumerary) – Dr M Satardien, Dr I Abrahams, Dr N Dormohammed, Dr L Kombo, Dr A van Eck, 6 Registrars; 7 Medical Officers

### A9 Neonatal Intensive Care Unit

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

<b>Beds n=8</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	508	510	461
Average NICU Stay in Days	8	8	8
Average Bed Occupancy %	87%	86%	81%
% Growth	-0.39%	+10.6%	+4.3%
Deaths	96	97 (19%)	108 (23.4%)

- **Referrals from outside TCH (outborns) (n) = 193**
- **Top 5 referring hospitals:**
  - KBH - 71
  - Paarl - 34
  - HH - 43
  - Worcester - 41
  - KH /Other - 4
- **Referrals for therapeutic hypothermia (TH): total = 88 (17.3% of total admissions)**
  - Inborn babies treated with therapeutic hypothermia (n) = 33 (37.5%)
  - Referrals from referral hospitals (n) = 55 (85% of outborn referrals from HH & KBH)
    - from HH - 15
    - from KBH - 32
    - from Paarl – 5
    - From WH - 3
- General Surgical admissions: 43 (8.5% of admissions)
- Other surgical (eg neurosurgery, ENT, urology, orthopaedics): 25 (4.9% of admissions)
- Mixed medical/surgical (NEC): 43 (8.5% of admissions)
- Cranial ultrasounds: ±950 (whole service)
- Neonatal echocardiography: ±150 (whole service)

### Ward G1: Neonatal Unit – Babies born outside TBH

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

<b>Beds n=30</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	793	1052	989
Average Ward Stay in Days	13	9	10
Average Bed Occupancy %	78%	89%	85%
% Growth	-24.6%	+6.4%	-11.3%
Deaths	22	21 (2%)	22 (2.2%)

## Highly Specialized Paediatrics

### A9 Paediatric Intensive Care Unit

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

<b>Beds n=10</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	649	818	728
Average Hospital Stay in Days	6	4	4
Average Bed Occupancy %	94%	86%	84%
% Growth	-20.6%	+10.3%	+10.1%
Deaths	61	65 (7.9%)	79 (10.9%)

#### **Paediatric Intensive Care Unit (PICU) bookings and admitted for elective postoperative beds 2019**

(Table 1 and 2)

#### **Paediatric Intensive Care Unit (PICU) Bookings for elective postoperative bed**

The data represents all the elective postoperative bookings made in the Paediatric Intensive Care Unit (PICU) file for elective Postoperative PICU Beds during 2019. The various specialties who booked patients are represented and the outcome for all patients are detailed where it was documented. This data is represented in Table 1, Figure 1 and Figure 2.

A total of 319 patient bookings were made for elective postop beds in PICU during 2019. 155 (49%) Booked patients were admitted to the PICU with the majority specialties being General Surgery (31%), Thoracic (25%) and Ear Nose and Throat (ENT) (13%). 194 Patients who had been electively booked for a PICU postop bed were not admitted to the PICU for a variety of reasons. The main reason for not admitting to PICU was the referral specialty cancelled the bed request (50 bookings, 16%). The reasons for this were decided by the referring specialty. PICU was informed accordingly of the cancellations. 29 Bookings (9%) were accepted for postoperative admissions into PICU and subsequently were admitted to a medical or surgical ward as they did not require the PICU bed, as decided by the attending surgical or medical specialist or anesthetist. These patients were predominantly from General surgery (8 bookings), Radiology (post CT / MRI / PET) (7 bookings) and ENT 6 bookings.

A PICU bed was not available for 35 (10%) booked elective postoperative cases due to no bed availability in PICU. 12 (3%) Of these bookings were directly related to bed restrictions by CRE colonized or infected patients in the PICU / HCU areas. The specialties most affected were General surgery (16 bookings), Thoracic (4 bookings) and ENT (6 bookings).

PICU bed refused to 1 booked postoperative ENT patient who appropriately did not require PICU level of care postoperatively.

#### **Considerations influencing PICU / HCU bed status**

Isolation room established accommodating CRE colonised / infected patients.

PICU relocated to East side, A9 June 2019.

Infection Prevention and Control Policy – All patients from PICU / HCU require discharge to ward G10.

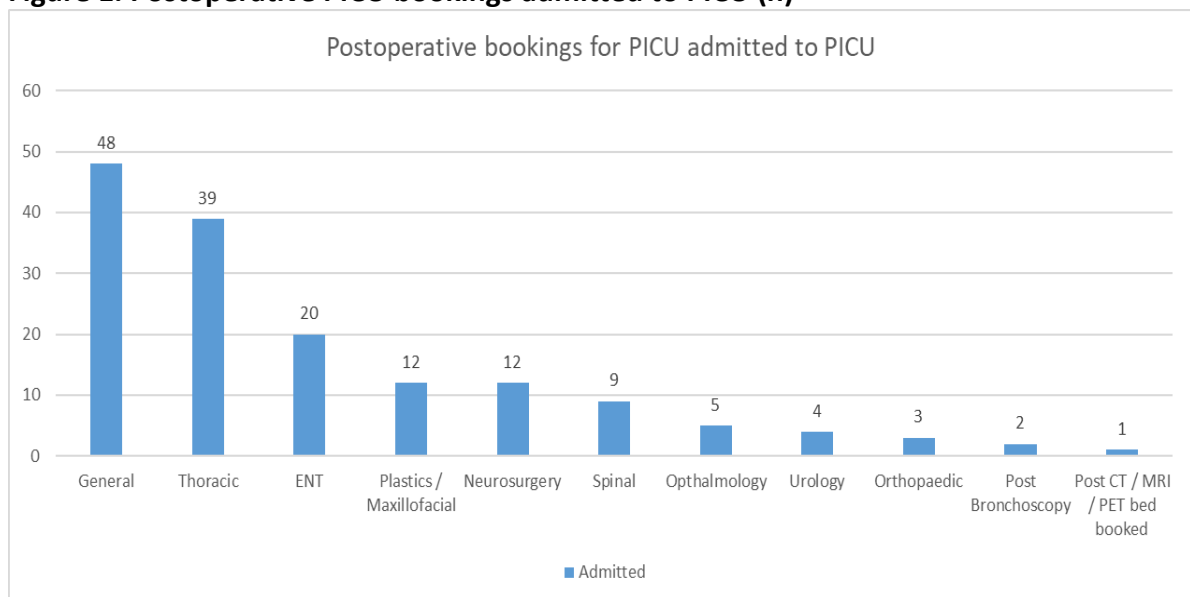
**Table 1. Outcome of all Bookings for elective postop beds in PICU (number of patients / %)**

Surgical discipline	Admitted	NA - not required admitted to surgical / medical ward postop	NA - bed cancelled by surgeon	NA - PICU Bed NA	Bed refused by PICU - not required	Not contacted for bed space on booked day	Nursing Under-staffed	PICU bed NA - CRE -	NA - Admitted to NICU
General	48 (31%)	8	21	12		11		4	2
Thoracic	39 (25%)		7	1		1		3	
ENT	20 (13%)	6	9	3	1	14		3	
Plastics / Maxillofacial	12 (8%)		3	1		3			
Neurosurgery	12 (8%)	2	1	1		2			
Spinal	9 (6%)		2	2		4		1	
Ophthalmology	5 (3%)		2	2		1		1	1
Urology	4 (2%)	2		1		3	1		1
Orthopaedic	3 (2%)	2	2						
Post Bronchoscopy	2 (1%)	2	2			5			
Post CT / MRI / PET bed booked	1 (1%)	7	1						
Totals	155 (44%)	29 (8%)	50 (14%)	23 (7%)	1	44 (13%)	1	12 (3%)	4 (1%)

NA = not admitted to PICU

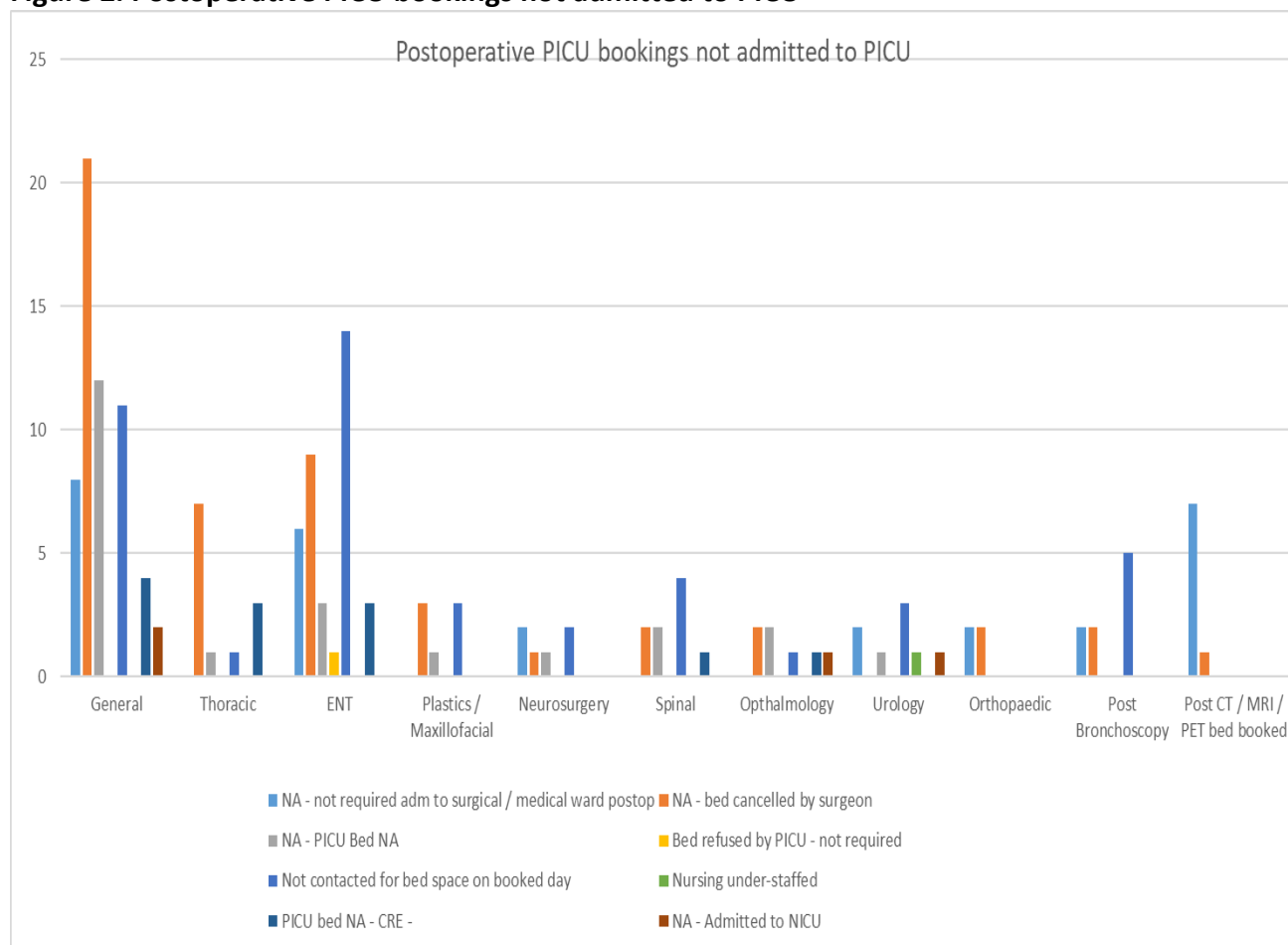
CRE = Carbapenem Resistant Enterobacteriaceae

**Figure 1. Postoperative PICU bookings admitted to PICU (n)**





**Figure 2. Postoperative PICU bookings not admitted to PICU**



**A9 Paediatric High Care Unit**

Staff as mentioned above.

Beds n=4	2019	2018	2017
Admissions	71	209	181
Average Hospital Stay in Days	2	3	4
Average Bed Occupancy %	14%	41%	34%*
Growth %	-66%	15.4%	67.5%
Deaths	0	2	2

\* Due to nursing staff shortages

**A9 Tracheostomy Unit**

Staff as mentioned above:

Beds n=6	2019	2018	2017
Admissions	64	51	109
Average Bed Occupancy %	19	56%	62%
Growth %	25.4%	-53%	13.5%
Deaths	1	2	1
Decannulation	1	2	10

### Ward G9 Paediatric Pulmonology and Allergy\*

Staff: Prof P Goussard, Dr J Morrison, 2 Senior Registrars (Dr L Mfingwana, Dr R Mohammed), 1 Pulmonology Specialist Sessions, Dr D Rhode (8 hrs/week), 2 Registrars, Shared Medical Officer in G9. Allergy (largely outpatients service) \*Prof S Kling, \*Prof E Zöllner, \*Dr P Rose, Dr S Chaya (4hrs per week)

<b>Pulmonology Beds n=10</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions Pulmonology	1161	995	956
Average Hospital Stay in Days	4.5	5.8	4.5
Average Bed Occupancy %	31.8%	65%	93%
% Growth	16.6%	4%	-2%
Deaths	0	1	1

*\*Doctors attached to other services, but responsible for allergy clinics*

#### **Theatre procedures and Other Activities**

- Bronchoscopies: 375 patients
- Thoracic surgery: 45 patients

### Ward G9 Neurology

Staff: Prof R van Toorn, Prof R Solomons, Dr P Springer, 2 Supernumerary Senior Registrar (Dr R Salih, Dr F Essajee), Dr A Thomas(8hrs per week), Dr Y Kooblal(4hrs per week) 2 Registrars

<b>Beds n=10</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	474	501	421
Average Hospital Stay in Days	7	6	6.0
Referral other wards	810	740	680
Average Bed Occupancy %	82%	76%	72%
% Growth	-5%	19%	10.8%
Deaths	6	8	4

#### **Other Activities**

- Paediatric EEG from Worcester hospital: 140
- Paediatric and neonatal EEG's from TBH reported by the 2 consultants: 460
- 6 Outreach clinics to Paarl hospital (patients seen): 101
- 4 Outreach clinics Worcester hospital (patients seen): 120
- 2 Clinics at Alta du Toit special school (patients seen): 38

### Ward G9 Paediatric Endocrinology

Staff: Prof E Zöllner, Dr M Grantham (25 hrs per week), Registrar, and shared intern for G9

<b>Beds n=5</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Patients admitted	111 Diabetics	102 Diabetic	120 Diabetic
	137 Endocrinology	150 Endocrinology	131 Endocrinology
<i>Admission Subtotal</i>	248	252	251
Admissions other wards, day cases	6*	8	10
<i>Admissions total</i>	254	260	261
Ward reviews	10*	14	6
Average Hospital Stay in Days	7	6	6
Average Bed Occupancy %	88% (not counting outliers)	88% (not counting outliers)	81% (not counting outliers)
% Growth	none	N/A	-5%
Deaths	0	0	0

\* Underreporting suspected

**Endocrine tests performed on 70 patients**

### Ward G10 Gastroenterology

Staff: Prof ED Nel, 2 Senior Registrars, 1 Supernumerary (Dr LT Radebe, Dr U Chowdhury), Registrar, and 1 Intern.

<b>Beds n=9</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	179	262	254
Average Hospital Stay in Days	8,75	7	8
Average Bed Occupancy %	72%	70%	82%
% Growth	-31%	+3%	+37%
Deaths	4	7	4

#### Paediatric procedures

- Gastroscopy 60
- Colonoscopy 18
- Liver biopsy 5

### Ward G10 Infectious Diseases Unit

Staff: Prof MF Cotton, Prof H Rabie (HIV Clinic), Dr P Rose, 2 Registrars

<b>Beds n=14</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	544	374	353
Average Hospital Stay in Days	9	9	9
Average Bed Occupancy %	76%	77%	82%
% Growth	+45%	+6%	+31%
Deaths	3 (chip) 10 (clinicom)	14	4

\* Clinicom data combined for gastroenterology, cardiology and infectious diseases

- 10 new referrals per week.
- Telephonic referrals: 100 per week (including outside calls)
- Stewardship rounds: 2 per week.

#### HIV service:

- Total children followed up: 438
- Total New cases initiating and followed up at TBH: 56 children started (25 infants <12 months)
- Transfers out: 45
- Transfers in: 27

### G10 Cardiology

*Cross Platform Staff:*

Tygerberg Hospital (TBH): Prof J Lawrenson, Dr B Fourie, 2 Registrars

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

<b>Beds n=10 (G3=5, G10=5)</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	160	159	146
Average Hospital Stay in Days	*	*	*
Average Bed Occupancy %	*	*	*
Inpatient Echocardiography	1307	923	845
Inpatient Consultations	1380	945	882
Growth numbers	384	63	7
Growth %	29%	7.1%	0.8%
Deaths	3	2	2

\* Clinicom data combined for gastroenterology, cardiology and infectious diseases

Worcester Clinic: 224

Paarl Clinic: 100

Cardiac Catheterisation: Diagnostic 101  
Interventional 97

### Ward G3 Oncology & Haematology

Staff: Prof M Kruger, Drs A van Zyl, R Uys, 2 Senior Registrars of which 1 Supernumerary (Dr L Schoonraad, Dr K Reddy), 2 Registrars

<b>Beds n=9</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>	<b>2016</b>
New patients Haematology	45	44	46	43
New patients Oncology	70	70	60	72
<b>New patients Total</b>	<b>115</b>	<b>114</b>	<b>106</b>	<b>115</b>
Admissions	1054	783	734	759
% Growth	** 34.6 %	+6.7%	-3.2%	11.4%
Average Hospital Stay in Days	4	5.25	5.25	6.05
Average Bed Occupancy %	127%	123%	120.5%	148.25%
Total deaths in G3	11	12	12	14
Expected palliative	8	8	8	
Sepsis/other	3	4	*4	
Referrals	Haematology 71	Haematology 70	Haematology 73	
G3 Day Patients (Haem/Onco)= Ward attenders	1715	1698	2094	2806
Chemotherapy administrations	2164	2051	2044	2590
Bone marrow aspirations and biopsies	107	101	108	143
Intra-thecal chemotherapy procedures	379	309	396	263

\*G3Ward data

\*\* Criteria for admissions changed for intrathecal chemotherapy from day patient to ward admission due to sedation protocol (nursing)

### Ward G3 Rheumatology & Immunology

Staff: Dr D Abraham (15 hrs per week), Registrar Shared with G3, Shared Medical Officer for G3

<b>Beds n=4</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions & Ward attenders	139	130+94 = 224	110+6 = 116 (82)
Average Hospital Stay in days	3	5	2
Average bed occupancy %	30%	36%	16%
% Growth	9%	25%	20%
Deaths	0	0	0

### Ward G3 Nephrology

Staff: Dr CJ du Buisson, Dr JL Shires – part-time, 1 Supernumerary Senior Registrar (Dr P Mashanga), Registrar and intern shared with haematology & Immunology

<b>Beds n=5</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	151	138	120
Average Hospital Stay in days	4.2	5	5
Average bed occupancy %	35%***	41%***	31% ***
% Growth	9%	15%	-32% ***
Deaths	0	1	0
Renal Biopsies*	14	22	23
Acute Dialysis**	8	16	11
Renal patients outside of G3***	126 55% Decrease	276 28% decrease	384 9% increase
Referrals****	455	431	428

\* Done in C4B Theatre under general anaesthesia

\*\* All done in PICU and NICU. We received 24 referrals and dialysed only 8. 16 patients that was refused was due to severe multiorgan failure and dialysis would not have improved the outcome. Most passed away soon after referral.

\*\*\* Patients were admitted in less numbers in other wards. We actively tried to keep patients at referral hospital and did daily telephonic consultation. This is due to space within G3 and other paediatric wards as well as CRE outbreak. Patients from referral hospitals was then seen at outpatients after discharge. We had 31 patients in neonatal wards, 27 in general wards, 35 patients in G4 and 33 patients in G10.

\*\*\*\* These are patients on which only advise needed in the acute phase, not continuous care and referred to outpatient service for further treatment.

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## OUTPATIENT COMPLEX

### Subspecialist Clinics

	2019	2018	2017
<b>Clinics</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>
Haematology	404	306	285
Immunology	167	169	229
Oncology	499	484	471
Pulmonology	1270	1194	1130
Gastroenterology	628	635	581
High-risk Babies	1877	2018	2056
Neurology & Developmental paediatrics	2309	2375	2176
Allergy	593	566	550
Premature Follow-up	158	210	262
Nephrology*	1417	1547	1482
Cardiology	1140	1099	1108
Diabetic	765	742	720
Endocrinology	647	685	666
Rheumatology	398	359	367
Infectious diseases			
TB	(710 C3A)	**752	855
HIV		473	467
Genetics	433	468	529
Pharmacy prescriptions	264	153	254
<b>Total</b>	<b>13679</b>	<b>13694</b>	<b>13721</b>

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

\*\* Patients seen in GGround due to limited number to be seen in C3A

#### Neuro-development:

- Developmental Medicine functions largely as an outpatient service:
  - 4 Clinics at Paarl School (patients seen): 40
  - Autism Diagnostic Observations Schedule (ADOS) evaluation: 12 children
  - Griffith Developmental Scales assessments: 8.

HIV service:

- Total new patients initiating ART: 25 children (infants <12 months)

## GENERAL SPECIALIST SERVICES

### Total Patient Admissions 2019 (Clinicom data)

GG Short Stay	G2	G7	G8	J3	Total
4720	1551	1005	955	941	<b>9172</b>

**Bed Occupancy Rate 2019 (Clinicom data)**

<b>GG Short Stay</b>	<b>G2</b>	<b>G7</b>	<b>G8</b>	<b>J3</b>	<b>Total</b>
66%	97%	75%	91%	111%	<b>88%</b>

**Neonatology**

**Ward G2 Neonatal Unit – Babies born in TBH**

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

<b>Beds n=27</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	1551	2072	2142
Average Ward Stay in Days	7	4	5
Average Bed Occupancy	97%	94%	105%
% Growth	-25.1%	-3.2%	+2.6%
Deaths	22	71 (3.4%)	70 (3.3%)

**Ward J3 Neonatal Unit – Babies born in TBH**

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

<b>Beds n=25</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	941	992	908
Average Ward Stay in Days	11	10	10
Average Bed Occupancy	111%	108%	101%
% Growth	-5.1%	+9.3%	-6.6%
Deaths	11	3 (0.3%)	2 (0.2%)

**Ward G8 Low Care Neonates & Kangaroo-mother Care – Step-down Facility**

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

<b>Beds n=30</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	955	1169	1057
Average Ward Stay in Days	11	8	9
Average bed occupancy %	91%	90%	87%
% Growth	-18.3%	+9.2%	+4.3%
Deaths	5	4 (3.2%)	0 (0%)

**Postnatal wards (J5, J2, C2A)**

Staff: 1 intern from neonatal pool

±6500 clinical contacts/year (based on estimated 25 patients/day on weekdays)



### 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

<b>Beds n=24</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	4720	5306	4567
Average Hospital Stay in Days	1,2	1	1
Average Bed Occupancy %	65,7%	79%	63%
% Growth	-11%	16%	-2%
Average Admissions per day	13	?????	13
Deaths	11	11	7

### Ward G7 General Paediatrics

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

<b>Beds n=25</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
Admissions	1005^	1308	1136
Admissions to HCU	380	441	134 (6mo)
Average Hospital Stay in Days	7	6	6
Average Bed occupancy	75%	78%	74%
Increase in Admissions	-23%^	+15%	-4.3%
Deaths	9	15	10

\*Clinicom data

^Reduction in admissions attributable to PICU down referrals to G10 instead of G7 as a result of CRE

### General Paediatrics: Emergency & Clinics

<b>Clinics</b>	<b>2019</b>	<b>2018</b>	<b>2017</b>
OPD 8am-4pm: Emergency & Routine	7923 GG total (day) 1978 OPD 5945 Emergency (day)	8 282 (GG total)	8 017 (GG total) 1203 OPD 6814 Emergency
Daily average seen	33	33	32
Annual after hours: 4pm-8am & weekend – Emergency	4306	4 639	4 620
Daily average seen after hours (4pm- 8am)	12	13	13
Emergencies after hours: 4pm-8am %	42%	36%	36%
<b>Total</b>	<b>12229</b>	<b>12 921</b>	<b>12 637</b>
<b>Increase</b>	<b>-5%</b>	<b>+2%</b>	<b>+5%</b>

## 2019 Morbidity & Mortality

### PPIP data from PPIP database 2019

**Total inborn births in TCH (TBH):** = 8049  
 (Stillbirths = 504) (Total live births = 7545)

### Inborn mortality rates at TCH:

- Perinatal Mortality Rate (PNMR) (≥500g) = 73.7/1000
- Perinatal Mortality Rate (PNMR) (≥1000g) = 37.6/1000
- Early Neonatal Death Rate (ENNDR) (≥500g) = 11.8/1000
- Early Neonatal Death Rate (ENNDR) (≥1000g) = 6/1000
- Late Neonatal Death Rate (LNNDR) (≥500g) = 4.2/1000
- Late Neonatal Death Rate (LNNDR) (≥1000g) = 2.6/1000

### Inborn Survival Rate for babies born alive at TCH:

- Survival Rate (≥500-999g) = 75.3%
- Survival Rate (≥1000g) = 99.1%

### Inborn mortality of babies born alive per birth weight category:

Total inborn neonatal deaths on PPIP = 121

Birth Weight	% Mortality 2019	% Mortality 2018	% Mortality 2017
< 1000g	24.7	22.1	<b>26.3</b> (58/220)
1000 to 1499g	5.3	3.6	<b>6.5</b> (31/471)
1500 to 1999g	1.6	1.6	<b>2.5</b> (18/722)
2000 to 2499g	1.1	0.4	<b>1.1</b> (12/1124)
≥2500g	0.2	0.3	<b>0.56</b> (28/4928)

*Mortality % calculated for each weight category as: number of deaths per number of live births in that weight category for 2019*

### % Deaths of babies referred to TCH per weight category:

**Total neonatal deaths in babies referred to TCH = 48**

Birth Weight	% Mortality 2019 (n= 48)	% Mortality 2018 (n= 45)	% Mortality 2017 (n=62)
<1000g	4	11.1% (5/45)	7.8 (4/51)
1000 to 1499g	14	22.2% (10/45)	17.6 (9/51)
1500 to 1999g	7	2.2% (1/45)	17.6 (9/51)
2000 to 2499	5	13.3% (6/45)	7.8 (4/51)
≥2500g	16	28.9% (13/45)	49 (25/51)
Wt not recorded	2	22.2% (10/45)	

*% calculated as the number of referred (outborn) deaths in each weight category out of all the referred (outborn) neonatal deaths (all weight categories).*

### Outborn babies mortality (total numbers) according to referral area of origin:

Geographic Service Area	2019 (n= 48)	2018 (n= 45)	2017 (n=62)
Metro East	18	17	30
Winelands (Paarl area)	9	15	11
Overberg (Worcester drainage area)	7	6	10
Helderberg	6	5	
Khayelitsha	7	2	
Unknown	1		0

### CHPIP MORTALITY for all sub-specialist paediatric wards (2019)

**Table 1:** All deaths per ward and age as on Clinicom excluding children >29 days of age dying in the neonatal deaths

Ward	Total	0-7 days	8-28 days	29 days - 11months	12 -59 months	>5-years
PICU	60	0	10	33	12	5
G10	9	0	1	3	2	3
G9	6	0	0	4	1	1
G3	9	0	0	0	4	5
G7	9	0	0	6	3	0
GG	10	0	0	5	3	2
<b>Total</b>	<b>103</b>	<b>0</b>	<b>11</b>	<b>51</b>	<b>25</b>	<b>16</b>

Median duration of stay at death 4 days IQR 1 – 14 ) [mean 11 days]

\*Excludes children that died in neonatal service

**Table 2:** Audited deaths per age and firm as per Child PIP

Ward	0 - 7 days	8 - 28 days	28 days - 1 Year	1 - 5 years	5 - 13 years	13 – 18 Years	Total
A9 PICU	0	8	32	8	6	0	54
Neonatology*	0	0	19	0	0	0	19
G7	0	0	6	2	0	0	8
Oncology	0	0	0	4	4	0	8
GGround	0	0	4	2	0	1	7
Neurology	0	0	4	1	1	0	6
Gastroenterology	0	0	2	0	1	1	4
Infectious Diseases	0	0	0	1	2	0	3
Cardiology	0	1	1	1	0	0	3
<b>Total</b>	<b>0</b>	<b>9</b>	<b>68</b>	<b>19</b>	<b>14</b>	<b>2</b>	<b>112</b>
Girls	0	6	36	7	7	1	57
Boys	0	3	30	12	7	1	53

\* infants older than 28 days of age died in neonatal service (only 3 audited deaths)

**Table 3:** Length of stay as per Child PIP

Length of stay	Number	Percent
1-3 Days	35	31.2
> 14 Days	27	24
< 24 Hours	24	21
8-14 Days	15	13.3
4-7 Days	11	9.8

**Table 4:**

Main Cause Of Death	Number	%
Septicaemia, possible serious bacterial infection	23	20.5
Pneumonia, ARI	15	13.3
Status epilepticus	7	6.25
Other nervous system (specify)	7	6.25
Other digestive system (specify)	6	5.3
Hospital-acquired infection	6	5.3
Other diagnosis (specify)	5	4.4
Other respiratory system (specify)	5	4.4
Other poisoning (specify)	4	3.5
Other endocr, nutritional, metabol (specify)	4	3.5
Acute diarrhoea, hypovolaemic shock	4	3.5
Cirrhosis, portal hypertension, liver failure, hepatitis	3	2.6
Ill-defined/Unknown cause of mortality	3	2.6
Cong malformations of the respiratory system	2	1.7
Heart failure, pulmonary oedema	2	1.7
Myocarditis	2	1.7
Other circulatory system (specify)	2	1.7
Other possible serious infection (specify)	2	1.7
TB: Pulmonary	2	1.7
Tumours	1	0.89
TB: Meningitis	1	0.89
PCP (suspected)	1	0.89
Other oncology/haematology (specify)	1	0.89
Congenital heart disease	1	0.89
Acute renal failure	1	0.89
Leukaemias	1	0.89
Meningitis bacterial	1	0.89

**Table 5:**

<b>Weight Category</b>	<b>Number</b>	<b>%</b>
Normal	60	53.5
M-K (Marasmic-Kwashiorkor)	17	15.1
Unknown	17	11
UWFA	11	9.8
Marasmus	4	3.5
OWFA	3	2.6

**Table 6:** Death by HIV status

<b>HIV status</b>	<b>Number</b>
Negative	76
Exposed	16
Unknown	9
Infected	8
Not tested (not indicated)	3

**Table 7:** Referring facilities

<b>District</b>	<b>Subdistrict</b>	<b>Number</b>	<b>%</b>
Unknown	Unknown	50	44.6
Cape Winelands District Municipality (16=14.2%)	Breede River/Winelands Local Municipality	5	4.46
	Drakenstein Local Municipality	10	8.9
	Stellenbosch Local Municipality	1	0.89
City of Cape Town Metropolitan Municipality (42=37.5%)	Cape Town Eastern Health sub-District	12	10.7
	Cape Town Northern Health sub-District	3	2.6
	Cape Town Southern Health sub-District	3	2.6
	Khayelitsha Health sub-District	13	11.6
	Tygerberg Health sub-strict	11	9.8
Overberg District Municipality (2=1.8%)	Theewaterskloof Local Municipality	2	1.7
West Coast District Municipality (1=0.89%)	Matzikama Local Municipality	1	0.89
Central Karoo District (1=0.89%)	Laingsburg Hospital	1	0.89



## Infrastructure Development

### Tygerberg Hospital Children's Trust Contribution

#### MEDICAL EQUIPMENT PROCURED FOR THE PERIOD

Date	Payment made to:	For:	Amount
2019/02/18	SSEM (Pty) Ltd	G3 Nihon Kohden Bedside Monitors x2	R197 000,00
2019/03/04	Premier Endoscopy	Paediatric Instruments	R18 411,37
2019/03/07	Oxy Matrix Pty Ltd	G8 J3 Decontamination Service	R10 667,75
2019/03/04	Dr Bradley Fryer	SECA 874 Electronic Paediatric Scale	R1 200,00
2019/11/29	Rotary Blouberg	Olympus Paediatric Ultrasound Bronchoscope	R200 000,00
<b>Total</b>			<b>R 427 279,12</b>

#### UPGRADE OF FACILITIES FOR THE PERIOD

Date	Payment made to:	For:	Amount
2019/01/23	Dustin Juries	Ward A9 locker doors, handles, countertops	R17 500,00
2019/01/25	Jaco de Klerk	Ward A9 painting and sealing	R30 990,00
2019/02/18	Dustin Juries	Ward A9 locker doors, handles, countertops	R8 200,00
2019/03/20	Jaco de Klerk	Ward A9 painting 6 toilets, 6 basin, 2 store	R24 500,00
2019/04/13	Jaco de Klerk	Ward A9 painting 14 toilets, store, offices	R24 500,00
2019/04/13	Jaco de Klerk	Painting of 7 wards	R61 980,00
2019/04/13	Jaco de Klerk	Ward A9 install 2 code locks	R4 750,00
2019/06/14	Jaco de Klerk	Ward A9 painting 17 stores	R33 150,00
2019/06/14	Interconnect Systems	Network and cabling Room 17	R1 304,10
2019/05/16	Jaco de Klerk	Ward A9 painting 16 toilets, store, offices	R31 200,00
2019/07/01	De Klerk Painters	Floor 7 install code lock	R2 350,00
<b>Total</b>			<b>R 240 424,10</b>

**DONATIONS RECEIVED FOR THE PERIOD**

DATE	SUPPLIER	PROJECT/WARD	AMOUNT
2019/02/06	Baby Book Project	ROAR Books	R68 832,01
2019/02/06	Melomed Bellville	Various projects	R21 285,50
2019/05/06	Trusts Events	Various projects	R174 827,23
2019/05/29	Ramadan Donations	Neonatal Equipment	R41 801,00
2019/08/06	Australia AIDS South Africa	HIV Youth outing	R37 968,06
2019/08/30	BSN Medical	Nursing Conference	R15 000,00
2019/10/01	Robin Banks & Assoc	Oncology	R30 000,00
2019/10/04	Individual donation	HIV Youth outing	R4 556,66
2019/10/28	World In Harmony	Neonatal Equipment	R96 538,80
2019/11/06	BSN Medical	Nursing Conference	R15 000,00
2019/11/25	DIS-CHEM Foundation	Education, Tygerberg Hospital School	R137 500,00
2019/12/27	Individual donations	Unspecified	R241 787,68
<b>Total</b>			<b>R885 096,94</b>

**Direct Donations to Tygerberg Hospital and Stellenbosch University**

DATE	SUPPLIER	PROJECT/WARD	AMOUNT/ITEM
	Book Dash	Hear the TYGER ROAR (Reach out and Read) PROJECT ( <i>Dr JCF du Preez</i> )	3 000 picture books
	Carte Blanche	Paediatric Cardiology ( <i>Prof J Lawrenson</i> )	ECG machine and ECG archiving computer
2019/01	Sidewinder	Neonatal ICU ( <i>Dr GTJ Kali</i> )	iNO machine
2019/09/20	Mr Marc Thomas/Vodacom	G3 Oncology ( <i>Dr A van Zyl</i> )	R8 000,00
2019/06/10	Me Colette van de Giessen	G3 Oncology ( <i>Dr A van Zyl</i> )	R20 000,00

## Part 2

### Community Outreach Programmes/Community Service and Interaction & Partnerships

#### Expert Members

Prof M Kruger

- Member of the European & Developing Countries Clinical Trials Partnership (EDCTP) independent evaluation of the Swedish International Development Cooperation Agency's (Sida) support to projects in the scope of the EDCTP2 programme for 5 years from 2019.
- Expert Haematology/Oncology Member for the Council for Medical Schemes on Prescribed Minimum Benefits since 2019.
- Member of the Central Clinical Committee of the South African Health Products Regulatory Authority (SAHPRA) since November 2014
- Member of the Senate Research Ethics Committee of Stellenbosch University
- Member of the Health Research Ethics Executive Committee of the Faculty of Medicine and Health Sciences, Stellenbosch University
- Member of the Centre for Medical Ethics and Law (CMEL) Governing Board of the Faculty of Medicine and Health Sciences, Stellenbosch University
- Member of the Postgraduate Research Committee of the Faculty of Medicine and Health Sciences, Stellenbosch University
- Trustee of the Tygerberg Hospital Children's Trust

Prof S Kling

- Immediate Past President, Council of College of Paediatricians
- Allergy Society of South Africa (ALLSA)
  - Member of Executive Committee since 1998
  - Chairman, Research Subcommittee (2011 to date)
- Ethics accreditor, CPD Committee, Faculty of Medicine and Health Sciences.
- Vice-chair, Undergraduate Research Ethics Committee since 2015
- Member of the Health 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).
- Member, Dean's Advisory Committee on Environmental Sustainability

Prof AC Hesselning

- NRF SARChi Chair in Paediatric Tuberculosis.
- Associate editor: International Journal against Tuberculosis and Lung Diseases, since 2009
- Site PI, CDC TBTC Network, Site 33, Stellenbosch University, since 2009
- Chair, Tuberculosis Scientific Committee, IMPAACT network, since 2011
- Co-chair: Pediatric Interest Group, TBTC network, since 2010
- Consultant: TB Alliance, Pediatric TB Unitaid program, since 2013
- Co-chair: PhD Committee, Department of Paediatrics and Child Health, Stellenbosch University, since 2015
- Member, Research committee (subcommittee C), Faculty of Medicine and Health Sciences, Stellenbosch University, since 2016
- South African TB Think Tank, TB Prevention Task force core member, since 2017
- Consortium Chair: South African Gates TB Demonstration and Scale-up, since 2018



Prof MF Cotton

- President of World Society of Pediatric Infectious Diseases from 2019-2021.
- 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 N Beyers

- POPART Zambia & RSA

Prof P Goussard

- Health Research Ethics Committee, Faculty of Medicine and Health Sciences
- Member of the South African Thoracic Society Editorial Board
- International Advisory Board of the International Congress on Pediatric Pulmonology
- Co-Chair of the Here Be Lungs Conference Organising Committee
- Chair of the Tygerberg Hospital Children's Trust

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

Dr B Fourie

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

Prof 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
- Health Research Ethics Committee, Faculty of Medicine and Health Sciences
- Paediatric HIV advisory Board for ViiV
- Collaborating with GARDP/DNDi on a NeoAMR global neonatal sepsis study

Prof J Lawrenson

- Ethics and Guidelines committee – SA Heart Association
- Member of the Provincial Clinical Governance Committee (PCGC)

Dr S Holgate

- USANA executive committee member – treasurer 2017-2019
- Member of Committee for Non-Invasive Ventilation in Paediatrics and Neonates

Dr G Kali

- Neonatal Encephalopathy with Suspected Hypoxic Ischemic Encephalopathy (NESHIE) study local PI
- United South African Neonatal Association executive committee member - vice president 2019-2021

Prof R van Toorn

- PANDA executive committee member – treasurer
- Member of the Committee for Postgraduate Teaching of the Faculty of Medicine and Health Sciences, Stellenbosch University

Dr CJ du Buisson

- South African Renal Society Executive Committee

Dr E Malek

- Chair of the Provincial Clinical Governance Committee (PCGC) Paediatrics, Newborn and Child Health
- Member of the Provincial 1<sup>st</sup> 1000 Days Executive Committee
- Member of the Provincial Perinatal technical task team

Dr R Uys

- Chair of the Governing Body of TBH school

Dr T Wessels

- Member of the Provincial Clinical Governance Committee (PCGC) Paediatrics, Newborn and Child Health
- Member of the Provincial Perinatal technical task team

Dr H Hassan

- Member of the Provincial Perinatal technical task team

Dr PS Springer

- Member of the Governing Body of TBH school

Prof R Solomons

- PANDA executive committee member
- Member of the MBChB Programme Committee and Middle Clinical Rotation Chair of the Faculty of Medicine and Health Sciences, Stellenbosch University
- Trustee designate of the Tygerberg Hospital Children's Trust (appointment 12/2/2020)

Prof A Dramowski

- National neonatal sepsis task force
- SASPID committee member
- Undergraduate Research Ethics committee member
- Associate editor BMC Antimicrobial Resistance and Infection Control
- Centre for Evidence-Based Healthcare governing board member

Dr A Redfern

- Member, steering committee, Paediatric Emergency Care Society of South Africa (PECSA)
- Member, National Executive Committee, EMSSA
- Member, National Executive Committee, South African Paediatric Association

Dr H Finlayson

- Chairperson, Tygerberg Antimicrobial Stewardship Committee
- Member, South African Antibiotic Stewardship Programme (SAASP) Working Group.
- Member, Ministerial Advisory Committee on Antimicrobial Stewardship.
- SASPID representative on the FIDSSA Expert Review Committee, and member of the National Neonatal Sepsis Working Group.

## **Outreach**

### **International**

- Profs PB Hesselning & M Kruger – Childhood cancer Cameroon

### **Regional and District**

- Worcester – Profs R van Toorn, R Solomons, J Lawrenson, B Fourie & Dr C du Buisson
- Paarl – Profs P Goussard, H Rabie, R van Toorn, R Solomons, Lawrenson and Dr B Fourie. HIV outreach: Dr Frigati/Rose
- George – Prof J Lawrenson, Dr B Fourie

- East London - Prof J Lawrenson, Dr B Fourie
- Delft - Drs L Smit, R Gioio (HIV outreach)
- Helderberg – Dr T Wessels; Perinatal – Dr H Hassan, Dr Frigati/Rose, (HIV outreach)
- Khayelitsha district hospital – Prof H Rabie, Dr P Rose
- Eersterivier – Drs H Finlayson (HIV outreach), JCF du Preez
- Ikwezi clinic HIV outreach
- Bishop Lavis clinic, HIV outreach
- Grabouw CHC HIV outreach
- Kraaifontein CHC HIV outreach
- Scottsdene – MDR TB outreach clinic – Prof Schaaf, Dr Rose
- Town 2 Khayelitsha – MDR TB outreach clinic – Prof Schaaf, Dr Rose
- 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), Neonatal – Neonatal team
- George – Dr B Fourie, Prof J Lawrenson
- East London – Prof J Lawrenson
- Brooklyn Chest Hospital – Prof HS Schaaf, Dr H Finlayson
- Paarl School for Children with Cerebral Palsy, Brackenfell---Dr Cilla Springer
- Western Cape Education Department outreach meeting for autism spectrum disorder, Chere Botha Centre, Bellville – Dr Cilla Springer
- Neurodevelopmental clinic - HOPE doctors and occupational therapist have been assisting once a week in a voluntary basis.
- Alta du Toit School for Learners with Special Educational Needs, Kuils River---Prof R Solomons
- Dora Nginza Hospital neonatal unit (IPC and antibiotic stewardship) – Prof A Dramowski

## **Tygerberg Hospital Children's Trust**

**Trustees: Prof P Goussard (Chair), Dr D Erasmus, Profs M Kruger, J Smith, R Solomons**

The THC Trust had a number of successful events in 2019. The reconstruction process was completed in 2019. A new Trust was launched with a media event. The Trust social media footprint were significantly enlarge with many social media, printed media as well as TV and radio appearances by the trust members. This served to improve the awareness of the trust in our local surroundings, but also served as education as the specialists of Tygerberg Paediatrics addressed many relevant topics. We appointed a PR and management company to improve our functionality. One of the big events was World Premature Day, which got a lot of media coverage. The trust have made many connections in 2019 and the hope is that this will bring significant financial rewards in 2020. Prof Regan Solomons was added as a new trustee in 2019. New systems of Champions of the trust have been created. In 2018, the trust also was selected as one of a few, being officially supported by the Arch Bishop Tutu Foundation. We would also like to thank everyone who supported the trust in 2019 and for their continuing support in 2020. We had many donations in 2019, not only financial support but also the donation of medical equipment and well as support for patients and their parents. We also had R3 000 000 bronchoscopy equipment donated to the hospital by the Blouberg Rotary Foundation with the help of Helene Visser.

We value all of these contributions as they not only improve the medical care of the patients but also improve the comfort of the mother and child during their hospital stay.

## **HOPE Cape Town**

**Chairperson of Association: Prof M Esser, Program Coordinator: Dr I Reyneke**

Tygerberg Hospital Paediatric and Child Health Department founded HOPE Cape Town NGO, in 2001 in collaboration with Rotary Signal Hill and the German Speaking Catholic Community Cape Town. The NGO networks within TBH and the surrounding townships and operates under the auspices of and in collaboration with the Department of Paediatrics and Child Health. The organisation continues to address the gaps in HIV/TB care through innovation and assists where needed in caring for children infected/affected by HIV and related illnesses at Tygerberg Hospital (TBH) and in the surrounding communities.

“HOPE to Home” Program located in the Paediatric Wards of Tygerberg Hospital aims to improve patient health care retention in care after discharge, by preparing for discharge, confirming appointments, keeping in contact with them in the community. Where possible, families in need are given food parcels, clothing, toiletries and toys. The program is supervised by a HOPE doctor and run by 2 fulltime HOPE employees, since 2019 craft classes for caregivers and play activities for children have been added. HOPE Cape Town has furnished and maintains a quiet room (a private space for counselling) and playroom in G7.

“HOPE for Babies” - In the labour and perinatal wards HOPE CT continues to provide support for counselling and HIV testing for earliest possible diagnosis of perinatal transmission and prevention with two dedicated Health Care Workers under the supervision of the Department of Obstetrics.

“HOPE for Delft” -The NGO employs two doctors both of whom are experienced HIV/ARV clinicians who assist the Tygerberg Infectious Diseases team to initiate and manage paediatric patients on ARVs at the Delft CHC Friday clinic. On average 26 children are seen per week requiring comprehensive care. HOPE CT has also established an ART Delft CHC –adolescent friendly afternoon – as well as adolescent support groups.

“HOPE Neurodevelopment” : The HOPE doctors, accredited lecturers, are assisting at the Tygerberg Paediatric Neurodevelopmental Clinic on a weekly basis. The HOPE Occupational Therapist is available on an ad hoc basis to perform Griffith’s tests at the neurodevelopmental clinic to fast track appropriate referrals.

“HOPE Student Elective” – a 4-week elective for international medical students in collaboration with FAMCRU remains a popular HOPE initiative. Students learn about HIV and related illnesses in South Africa and they are exposed in safe escort to local communities. They participate in community projects and gather insight not only into the various health issues facing SA but also the different cultures.

“HOPE Tygerberg School” HOPE sponsors the salary for a Xhosa home language teacher at the Tygerberg Hospital School.

“HOPE Research” - three studies are currently supported by HOPE Cape Town at Tygerberg Hospital, two of which conducted by the HOPE doctors and SU collaborators.

- 1) Risk of HIV Infection in Young Peripartum Women (15 – 24 Years) at Tygerberg Hospital
- 2) NGO case histories of the early paediatric ART experience at Tygerberg
- 3) CMV Status evaluation of neonates at Tygerberg Hospital

The organisation is committed to continue with flexible support where needed for infants, children and their caregivers infected and affected by HIV/AIDS and related illnesses.

## **Hear the TYGER ROAR (Reach out and Read) PROJECT at Tygerberg Hospital**

**Dr JCF du Preez**

**Our aim is to gift a book to every child seen and admitted to the hospital.**

Society Bistro donated 12 mobile libraries to use in the wards. Qualibooks donated books towards the book trollies and the National Library donated books for our use.

Book Dash donated 3 000 beautiful board books for us to hand out and the nursery rhyme book project is still ongoing : The books include a referral "script" to the closest library and book sharing tips for parents

Volunteers serviced the outpatient's waiting rooms regularly. (All voluntary services has been stopped since 2020 due to the COVID pandemic)

## Media Exposure

### TV/Radio Interviews:

- Espresso Show Live, SABC 3, 14 November 2019: Tygerberg Hospital Children's Trust (*Prof J Smith & Dr G Kali*); <https://youtu.be/wGezZkjG9tM> (at 2:30 minutes)
- The Voice of the Cape Drivetime, 29 October 2019: Stellenbosch University wins grant to fight TB (*Prof AC Hesselning*); <https://iono.fm/e/764126>
- 104FM Radio Tygerberg, 25 October 2019: Child TB will soon be better treated than in the past (*Prof AC Hesselning*)
- KKC Kids Kicking Cancer (South Africa) Radio Station with Dischem (*Prof M Kruger, Drs A van Zyl & R Uys*), 26 March 2019

### Articles:

**Name of publication:** Die Burger

**Name of article:** Mediese student wen US-Kanseliersmedalje (*Prof H Rabie*)

**Link:** <https://www.netwerk24.com/Nuus/Onderwys/mediese-student-wen-us-se-kanseliersmedalje-20191210>

**Date:** 11 December 2019

**Name of publication:** TygerBurger

**Name of article:** Excellence Awarded (*Profs P Goussard, M Kruger, J Smith*)

**Link:**

[http://www.sun.ac.za/english/faculty/healthsciences/Documents/Media%20Review/2019/MediaReview\\_2-8Dec.pdf](http://www.sun.ac.za/english/faculty/healthsciences/Documents/Media%20Review/2019/MediaReview_2-8Dec.pdf)

**Date:** 4 December 2019

**Name of publication:** Health24

**Name of article:** OPINION: Civil society and science play key role in battle against HIV (*Prof MF Cotton*)

**Link:** <https://www.health24.com/Medical/HIV-AIDS/News/opinion-civil-society-and-science-play-key-role-in-battle-against-hiv-20191129-3>

**Date:** 4 December 2019

**Name of publication:** Weekend Argus

**Name of article:** World Prematurity Day at Tygerberg Hospital (*Dr JCF du Preez*)

**Link:** [https://storage.googleapis.com/clientclipsr/20191124/17074829\\_16E9867DB92.jpg](https://storage.googleapis.com/clientclipsr/20191124/17074829_16E9867DB92.jpg)

**Date:** 23 November 2019

**Name of publication:** Medical Academic

**Name of article:** Stellenbosch University develops safer treatment for kids with MDR-TB (*Profs AC Hesselning & A Garcia-Prats*)

**Link:** <https://www.medicalacademic.co.za/pulmonology/stellenbosch-university-develops-safer-treatment-for-kids-with-mdr-tb/>

**Date:** 29 October 2019

**Name of publication:** IOL

**Name of article:** SU signs grant agreement to combat children's TB (*Profs AC Hesselning & A Garcia-Prats*)

**Link:** <https://www.iol.co.za/capeargus/news/su-signs-grant-agreement-to-combat-childrens-tb-35744110>

**Date:** 27 October 2019

**Name of publication:** NUUS @StellenboschUni

**Name of article:** Skenking help us om veiliger en eenvoudiger behandeling te ontwikkel vir kinders met MDR-TB (*Profs AC Hesselning & A Garcia-Prats*)

**Link:** <http://stellenbosch.evlink2.net/public/messages/view-online/2eYtUvunrH77LGjh/pyvT7SUJ8GXC6yLD/vYsnJfQEglA45B4x>

**Date:** 25 October 2019

**Name of publication:** Cape Argus

**Name of article:** SU signs grant agreement to combat children's TB (*Profs AC Hesselning & A Garcia-Prats*)

**Link:**

[http://www.sun.ac.za/english/faculty/healthsciences/Documents/Media%20Review/2019/MediaReview\\_21-27Oct.pdf](http://www.sun.ac.za/english/faculty/healthsciences/Documents/Media%20Review/2019/MediaReview_21-27Oct.pdf)

**Date:** 23 October 2019

**Name of publication:** Cape Times

**Name of article:** R280m Funding For Stellenbosch University To Tackle Child-Friendly TB Treatment (*Profs AC Hesselning & A Garcia-Prats*)

**Link:**

[http://www.sun.ac.za/english/faculty/healthsciences/Documents/Media%20Review/2019/MediaReview\\_21-27Oct.pdf](http://www.sun.ac.za/english/faculty/healthsciences/Documents/Media%20Review/2019/MediaReview_21-27Oct.pdf)

**Date:** 23 October 2019

**Name of publication:** Cape Times

**Name of article:** Edible sensor helps TB patients take their meds: study (*Prof MF Cotton*)

**Link:**

[http://www.sun.ac.za/english/faculty/healthsciences/Documents/Media%20Review/2019/MediaReview\\_21-27Oct.pdf](http://www.sun.ac.za/english/faculty/healthsciences/Documents/Media%20Review/2019/MediaReview_21-27Oct.pdf)

**Date:** 4 October 2019

**Name of publication:** TygerBurger Parow & Goodwood

**Name of article:** CRE outbreak claims life of one baby (*Prof A Bekker*)

**Link:**

[http://www.sun.ac.za/english/faculty/healthsciences/Documents/Media%20Review/2019/MediaReview\\_11-17Feb.pdf](http://www.sun.ac.za/english/faculty/healthsciences/Documents/Media%20Review/2019/MediaReview_11-17Feb.pdf)

**Date:** 13 February 2019

**Name of publication:** TygerBurger Elsie's rivier

**Name of article:** No need to panic over CRE outbreak (*Prof A Bekker*)

**Link:**

[http://www.sun.ac.za/english/faculty/healthsciences/Documents/Media%20Review/2019/MediaReview\\_11-17Feb.pdf](http://www.sun.ac.za/english/faculty/healthsciences/Documents/Media%20Review/2019/MediaReview_11-17Feb.pdf)

**Date:** 13 February 2019

### **International visitors:**

**Dr Eva Loth and Professor Declan Murphy**, Kings College, London. Co-investigators and funders from AIMS-2-TRIALS (European Union- Autism Innovative medicine study). Research meeting "Biomarkers of neurodevelopmental outcome in a cohort of South African children", January 2019.

**Profs David G. Poplack, MD & Jeremy Slone**, Global Hematology-Oncology Pediatric Excellence (HOPE), Texas Children's Cancer and Hematology Centers, Houston, TX, United States. Paediatric Oncology Mini-Symposium, 29 July 2019.

**Dr Tim Cressey**, Research Associate, Department of Immunology and Infectious Diseases, Harvard School of Public Health, USA; and Honorary Senior Lecturer, Department of Molecular & Clinical Pharmacology, University of Liverpool, UK, 17– 21 October 2019. Pharmacology colleague and IMPAACT collaborator of Prof Adrie Bekker on many antiretroviral PK projects.

**Prof Mirjam M van Weissenbruch**, Pediatrician-Neonatologist, Department Pediatrics/IC Neonatology, Amsterdam : 3-13 April & 21-27 November 2019; Discussions as co-supervisor of Dr Lizel Lloyd's PhD.

**Prof Mary Rutherford**; Neuroradiologist, Kings College London, November 2019. Neonatal Brain MRI discussions, and co-supervisor of Dr Gugu Kali's PhD.

**Prof Marceline Tutu-Van Furth & Dr Martijn van der Kuip**: Department of Pediatric Infectious Diseases-Immunology, VU Medical Center, Amsterdam, The Netherlands (15-23 November 2019). Joint Stellenbosch University and VU University Amsterdam – NRF Desmond Tutu Doctoral Programme for PhD candidates, Drs Yajna Kooblal and Dan Zahari.

**Professor William Fifer, and Dr Lauren Shuffrey**, Columbia University, New York, Meeting regarding research collaboration. December 2019

## **Part 3**

### **Teaching & Training**

#### **Education-related Activities**

##### **Postgraduate Students**

##### **Successful PhD Candidates**

- **Dr Shaun Barnabas**: PhD from UCT, graduated July 2019. Title: Sexually transmitted infections, bacterial vaginosis and genital inflammation as risk factors of HIV acquisition in adolescent girls and young women in South Africa (*Supervisors: Jo-Ann Passmore, Linda-Gail Bekker and Lindi Masson*)

## Enrolled PhD students

- **Mr G Mbah Afungchwi:** Title: Advocacy for childhood cancer in Cameroon: improving early diagnosis and referrals to life-saving care. Supervisor: Prof M Kruger, Prof PB Hesselning
- **Dr K du Preez:** Title: Complementary surveillance strategies and interventions to inform a tuberculosis care cascade for children. Supervisors: Proff AC Hesselning, HS Schaaf and Dr P Naidoo
- **Dr JCF du Preez:** Title: The Baby Book Project. Dosing with Words. Can nursery rhyme reading by mothers, during hospital stay, enhance neurodevelopment and maternal-infant interaction in premature infants? Supervisors: Profs J Smith, P Cooper, L Murray
- **Dr GTJ Kali:** Title: A comparative study of neuroprotective strategies in neonatal hypoxic ischaemic encephalopathy. Supervisors: Prof J Smith, Dr M Rutherford
- **Dr Y Kooblal:** Title: The relationship of body composition on nutritional and immunological status in childhood tuberculosis. Supervisors: Prof Ronald van Toorn, Dr Martijn van der Kuip and prof Marceline Tutu van Furth
- **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 (***Thesis submitted and examined, October/November 2019***)
- **Dr M Osman:** Title: TB-associated mortality in South Africa: longitudinal trends and the impact of health system interventions. Prof AC Hesselning and Dr P Naidoo
- **Prof L Pepeta:** Title: Novel medical and percutaneous modalities in the management of a patent ductus arteriosus in middle income and low income countries. Supervisors: Prof M Kruger, Dr HN Ntsinjana
- **Prof H Rabie:** Title: Pharmacokinetics and therapeutic outcomes of children with tuberculosis/HIV co-infection treated with lopinavir/ritonavir and a rifampicin-containing anti-tuberculosis regimen. Supervisors: Proff MF Cotton, HS Schaaf, RP Gie (***Thesis submitted and examined, October/November 2019***)
- **Dr P Rose:** Title: Determinants of liver disease in HIV-infected children in the era of early antiretroviral therapy. Supervisors: Profs SV Innes, ED Nel
- **Me J Schoeman:** Title: Nutritional status of children at cancer diagnosis and during treatment, with a focus on the association with their clinical outcome . Supervisors: Profs M Kruger, Elena J. Ladas and Paul Rogers.
- **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 (***Thesis submitted and examined, October/November 2019***)
- **Dr J van Heerden:** Title: Neuroblastoma In Low And Middle Income Countries. Supervisors: Prof M Kruger
- **Dr L van Wyk:** Title: Non-invasive cardiac output monitoring in preterm infants . Supervisors: Prof Johan Smith, Dr John Lawrenson and Prof Willem-Pieter de Boeck
- **Dr A van Zyl:** Title: Long-term follow-up and care of childhood cancer survivors in South Africa. : Supervisors: Profs M Kruger and P Rogers
- **Mr DT Wademan:** Title: Chronic conditions and care: Intergenerational experiences of living with HIV, TB, and diabetes in South Africa. Supervisors: Dr G Hoddinott

## Successful MMed(Paed) Candidates

- Dr Leonore Greybe
- Dr Juanita Lishman



- Dr Zodidi Myeko
- Dr Sumari Marais
- Dr Mia van Velden
- Dr Sebastian Gericke
- Dr Madelein Grobbelaar

### **MMed(Paed) Part II Written & Oral**

- Dr Mohammed Ebrahim
- Dr Lorraine Ndjoze

### **Colleges of Medicine of South Africa (CMSA)**

- **Certificate in Paediatric Gastroenterology**
  - Dr Lindokuhle Radebe
- **Certificate in Paediatric Neurology**
  - Dr Thembi Katangwe
- **Certificate in Paediatric Pulmonology**
  - Dr Yabwile Mulambia
- **Certificate in Paediatric Rheumatology**
  - Dr Deepthi Abraham
- **FC Paed (SA) Part II**
  - Dr Sebastian Gericke
  - Dr Madelein Grobbelaar
  - Dr Leonore Greybe
  - Dr Tjijandjeua Kandetu
  - Dr Juanita Lishman
  - Dr Luvina Nuckchedee Dookhony
  - Dr Nightingale Sekgabo
  - Dr Magriet van Niekerk
- **FC Paed (SA) Primary**
  - Dr Mohammed Asrafee Jameel Busgeeth
  - Dr Genevieve Alexa Theron
  - Dr Isack Shinime

### **Undergraduate Students**

94% pass rate (2018 = 98%)

### **Education-related Activities**

All consultants are involved with under- and postgraduate teaching and supervision on a daily basis. Additional education activities includes:

- Education Committees of the Department:

- Undergraduate: Dr A Redfern (Chairperson), Dr N Parker (secundus)
  - MBChB II: Drs P Rose, E Malek, L Lloyd, L van Wyk, Sr L Yzelle
  - Early rotation: Drs L Smit, prof H Rabie, H Hassan, Dr M Morkel, Sr L Yzelle
  - Middle rotation: Drs C du Buisson, N Parker, P Springer, R Uys, Prof E Zöllner
  - SI: Dr B Fourie, Prof R Solomons, Drs I Appel, A van Zyl, J Morrison, M Morkel
  - Remedial: Dr M Morkel, Sr L Yzelle
  - Elective students: Dr L Schoonraad, Prof M Kruger
- Postgraduate: Dr G Kali (chairperson), Proff R van Toorn, R Solomons, ED Nel, Drs H Finlayson, S Holgate, N Parker & registrar representative
- PhD: Proff M Kruger (Chairperson), MF Cotton, AC Hesselings, HS Schaaf, J Smith, ED Nel, R van Toorn, P Goussard, A Bekker, R Solomons, A Dramowski
- External examiners at institutions in South Africa:
  - Undergraduate:
    - Prof M Kruger, Upington SI Examinations, 8-9 October 2019
    - Dr I Appel, University of Pretoria, October 2019
    - Dr B Fourie
      - Sefako Makgatho Health Sciences University, September 2019
      - University of Pretoria, November 2019
    - Drs Y Kooblal, University of Pretoria, August 2019
    - Dr A Redfern, Worcester Hospital, October 2019
    - Dr GTJ Kali, UKZN, October 2019
  - Postgraduate:
    - Prof M Kruger:
      - MMed (Paed) dissertation: University of the Witwatersrand, South Africa 2019 – Carla Basson: Title: Coeliac disease in a South African paediatric type I diabetes mellitus clinic.
      - MPhil in Arts and Social Sciences at Stellenbosch University, South Africa 2019 – RCH Thetard: Title: Who's morality, who's burden: abortion, international development and grandstanding.
      - MMed (Paed) dissertation: University of Botswana, Botswana 2019 –Aobakwe Siamisang: Title: Prevalence of and Risk Factors for Anaemia among hospitalized children in a Tertiary Centre in Botswana.
    - Prof E. Zöllner:
      - PhD: University of Cape Town 2018-2020 – Wisdom Akurugu: Title: Genetic predictors of hypothalamic-pituitary-adrenal suppression in children on corticosteroid treatment
- Senior registrars in training:
  - Neonatology: Drs A van Eck (sponsored by MediClinic South Africa), I Abrahams, NM Dormohamed, L Kombo (Supernumeraries from Kenya), M Satardien
  - Paediatric Oncology: Drs K Reddy (Discovery Subspecialist Award), L Schoonraad
  - Paediatric Rheumatology: Dr DR Abraham
  - Paediatric Pulmonology: Drs L Mfingwana, Y Mulambia (Supernumerary from Malawi), R Mohammed (Supernumerary from Sudan)
  - Paediatric Neurology: Drs F Essajee (Supernumerary from Kenya), T Katangwe (Supernumerary from Malawi), R Salih (Supernumerary from Sudan)
  - Paediatric Nephrology: Dr P Mashanga (Supernumerary from Zambia)

- Paediatric Gastroenterology: Drs LT Radebe, U Chowdhury, sponsored by a Nestle Nutrition Institute Fellowship endorsed by the European Society of Paediatric Gastroenterology (Supernumerary from Bangladesh/Botswana)
- Educational Outreach:
  - Prof M Kruger, UKZN Postgraduate Accreditation Visit, 12-16 August 2019
- Colleges of Paediatricians (CMSA)
  - Moderators:
    - Prof M Kruger, Cert Medical Oncology(SA) Paed, February & May 2019
    - Dr P Springer, Cert Developmental Paediatrics, Bloemfontein, October 2019
  - Convenors:
    - Prof S Kling, convenor, and Dr S Holgate co-convenor, DCH (SA), Tygerberg, 8-9 April 2019
  - Examiners
    - Prof H Rabie, FC Paed(SA) Part II Oral, Durban - 14-16 October 2019
    - Prof P Goussard, Cert Paediatric Pulmonology, Durban, 14 October 2019
    - Prof R Solomons, Cert Paediatric Neurology, Cape Town- 24 April 2019
    - Drs A Redfern and T Wessels, DCH (SA), Tygerberg, 8-9 April 2019
- 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

#### *Appointments*

**Dr Anthony Garcia-Prats** – promoted to Associate Professor

**Dr Graham Hoddinott** – promoted to Senior Researcher

**Dr Peter Bock** – promoted to Associate Professor

#### *Grants/Awards*

**Prof Peter Hesseling** received the Lifetime Achievement Award at the 51<sup>st</sup> Congress of the “Société Internationale d’Oncologie Pédiatrique” (SIOP) in Lyon, France on 23 October 2019.

**Prof Angela Dramowski** received the Society for Healthcare Epidemiology of America (SHEA) Education & Research Foundation 2019 Research Grant for \$5,000 USD to implement her research project: Promoting a clean environment for the prevention of hospital-acquired neonatal sepsis in a low-resource setting.

**Profs Anneke Hesseling, Anthony Garcia-Prats and Adrie Bekker**, received the UNITAID grant of \$18 926 925 for the project: Better Evidence and Formulations for Improved MDR-TB Treatment for Children (BENEFIT Kids).

**Dr Miemie du Preez** received the HB & MJ Thom award to the value of R80 000 for overseas visit relating to her PhD studies entitled: “*The Baby Book Project.*”

**Dr Lizel Lloyd** received the Young Investigator award from FIDSSA-Institut Métioux to the value of 5000 Euro towards her PhD research entitled: *“Hospital-acquired neonatal infection in very low birth weight infants: optimizing screening strategies for low-resource settings.”*

Tygerberg Hospital Board Team Recognition Awards:

- **Prof Adrie Bekker and Dr Gugu Kali (on behalf of the neonatal team)** received a certificate of *Recognition for exceptional team performance* of their management of the CRE outbreak.
- The G-Ground team, **Drs Liezl Smit, Sadia Murray, Andrew Redfern & Sr Dyk** received the certificate for *Innovation in patient flow management*.

**NRF ratings:**

- Dr Amy Slogrove Y1

## **Sabbaticals**

### **Prof Johan Smith - 1 October 2019 to 31 March 2020**

During his sabbatical assisted as supervisor with the completion of the PhD of Dr's G Kali & L van Wyk; the completion of research and writing of several research articles, including towards the MMed(Paed) degree of Dr M can Niekerk; revised the Tygerberg Neonatal Clinical Guide book as well as the Tygerberg Neonatal Ventilation Guide book. He also completed an invited article for *“Neonatology”* to be presented at Recent Advances in Neonatology, Wurzburg and SPIN, Madrid conferences in 2020.

### **Dr L van Wyk - 1 July to 30 September 2019**

Dr Van Wyk is enrolled at Stellenbosch University for her PhD, titled: *‘Non-invasive cardiac output monitoring in preterm infants.’* (Ethics no. N13/04/053). During her sabbatical leave she completed data cleaning and analyses. She published an article regarding the accuracy of bioreactance and transthoracic echocardiography as well as presenting more of her PhD data at an international conference in Maastricht, the Netherlands

## **Conferences Organized**

The **ninth annual Paediatric Academic Day of Excellence** (Effective public health systems, like the cycle industry depends on having good spokes) was held on Wednesday 27 November 2019 in the Faculty. It included invited speakers: Dr Keith Cloete (WCG Health), Prof Shabir Madhi (Wits), Dr Adrian Rotunno (Sports Science Institute of SA) and Prof Mary Rutherford (Kings College London).

The **63rd Annual Academic Day** of the Faculty of Medicine and Health Sciences was held on 21 August 2019. The Maternal and Child Health sessions included PhD lectures by Drs Florian Marx, Rory Dunbar, Peter Bock and Sue-Ann Meehan. Dr Louisa Erasmus was awarded the Best Registrar Presentation for her MMed(Paed) research titled: *“Reported competencies of junior medical doctors in managing seriously ill and injured children in south african hospitals.”*

### **Profs Pierre Goussard & Johan Smith**

- Here Be Lungs, Spier, Stellenbosch, 7-8 March 2019

### **Prof Steve Innes**

1<sup>st</sup> African Microbiome Symposium & Workshop, Wallenberg Research Centre at STIAS 28-30 Nov 2019

**TBH Neonatology were actively involved in the success of biggest USANA conference held, the 4th Biennial USANA Conference held in Port Elizabeth, 12 – 15th September 2019**

- **Dr S Holgate** – outgoing USANA executive committee member and treasurer/organiser

## **Conference Presentations**

### **Prof Mariana Kruger**

- 13th SIOP African Meeting (International Society of Pediatric Oncology), Cairo, Egypt, 6-9 March 2019:
  - Keynote invited lecture: Ethics of stem cell transplantation
  - Nutrition Workshop Session Chair
- Continuing Nutrition Education (CNE) Programme, Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, 30-31 May 2019. Invited Speaker - Ethical dilemmas in the nutrition management of the elderly
- SA Congress of Oncology (SACO), Cape Town Convention Centre, 9-11 August 2019 - Invited speaker
  - Presentation - Report of 1st National Retinoblastoma Treatment Protocol in South Africa – Kruger M
  - Session Chair - Kruger M - Parallel Session 6C - Paediatric Oncology
  - Collaborator on presentations:
    - Developing a national nutritional study in Paediatric Oncology units in South Africa –Schoeman J
    - The management of neuroblastoma in South Africa between 2000 and 2014 – Van Heerden J
- 51st SIOP Congress of the International Society of Paediatric Oncology (SIOP): October 23-26, 2019, Lyon, France. Poster presentation - Outcome comparison of 2 retinoblastoma treatment protocols for developing countries as per SIOP-PODC recommendations

### **Prof Angela Dramowski**

- Invited by the Bill & Melinda Gates Foundation, and the U.S. Centers for Disease Control and Prevention to participate in a Neonatal Sepsis Expert Meeting on infection prevention in April 2019, Atlanta.
- PENTA-ID Meeting Baveno, Italy, 29 May to June 1 2019 presented the neoCHG study protocol at the neonatal AMR meeting
- Invited to present on the global epidemiology of neonatal sepsis at the NICD Annual Germs PI meeting, Johannesburg, 16-17 July 2019
- Two invited talks at 4th Biennial USANA Conference held in, Port Elizabeth, 12 – 15th September 2019: Prevention of antibiotic resistant infections and Epidemiology of neonatal fungal infections.
- Launch of the National Neonatal Sepsis Task Force, Port Elizabeth, USANA conference, September 2019
- Co-organised and presented a conference session on outbreak management in low-resource settings at the 11th World Congress of the World Society for Pediatric Infectious Diseases which was held in Manila, Philippines | 5-8 November 2019.
- Carbapenem-resistant Enterobacteriaceae: the Tygerberg Hospital experience, Health Impact Assessment Unit, Western Cape Dept. of Health, February 2019
- Modelling the mortality impact of treatment regimens for antimicrobial-resistant neonatal bloodstream infections in African countries, Gates Grand Challenges, Ethiopia, October 2019
- Detect and protect: key interventions following emergence of CRE in the Western Cape, Annual Western Cape IPC Day, October 2019

- Quality improvement in neonatal care for healthcare managers, SU\_ November 2019
- Infection Prevention and Control in low-resource settings, 11th World Congress of the World Society for Pediatric Infectious Diseases (WSPID), Philippines, November 2019.

**Prof Etienne Nel**

- Micronutrients in Severe Acute Malnutrition. Continuing Nutrition Education Conference, NWU, Potchestroom. 11/4/2019

**Dr Elmarie Malek**

- Western Cape 1st 1000 Days Initiative:
  - Presentation done at the Thabo Mbeki Foundation, Kagiso Trust and UWC Joint Seminar on Education in the Age of the 21st Century (21 June 2019) and
  - Inputs into the Institute of Security Studies' National Dialogue forum on Violence Prevention against Children (24 May 2019), the SA Law Reform Commission discussion paper on sexual offences (19 June 2019) and the City of Cape Town Resilience Strategy (21 May 2019)
  - Presentation to the 38th Priorities in Perinatal Care Conference: Provincial First 1000 Days Initiative Parent Support package. Hartenbos, Western Cape, South Africa. March. 2019.
  - Invited Presentation Joint Seminar on Education in the age of the 21st Century: UWC, Kagiso Trust and Thabo Mbeki Foundation: Lessons from the 1st 000 Days of Life. June 2019.
  - Presentation to African Regional Child Trauma Conference: Provincial 1st 1000 Days Initiative. Cape Town. August 2019.

**Prof Mark Cotton**

- PENTA-ID Meeting Bavuna, Italy, 29 May to June 1 2019; gave lecture: 'update on TB research' June 1 2019
- WHO ARV guideline meeting 2019 June 5 – 7, 2019
- IMPAACT (10 – 14 June) & ACTG (17 – 21 June) meeting attendance Washington DC

**Prof Ekkehard Zöllner**

- Received the best Oral Presentation Award for the paper "The role of rs41423247 in Protection Against Hypothalamic-Pituitary-Adrenal Suppression in Asthmatic Children on Corticosteroids", WA Akurugu, CJ van Heerden, AA Vorster, M Lesosky, N Mulder, E Zöllner at the "International Society for Computational Biology and the African Society for Bioinformatics and Computational Biology" Congress, Kumasi, Ghana, 11-15 November 2019.
- 58th ESPE Meeting, Vienna, Austria, September 2019: Presented paper by Akurugu WA, Van Heerden CJ, Vorster AA, Lesosky M, Mulder N, Zöllner EW, "Could a Glucocorticoid Receptor Polymorphism be Protective against Hypothalamic-Pituitary-Adrenal Axis Suppression in Asthmatic Children on Corticosteroids?"

**Dr Sebastian Gericke**

- International Conference on Pediatric Healthcare, Prague, Czech Republic, 12-13 June 2019 (Presented his MMed research: Changes in cerebral blood flow and cardiac output in premature neonates in the first 72 hours of life; Supervised by Prof J Smith & Dr L van Wyk)

**Prof Pierre Goussard**

- 5th International Conference on Esophageal Atresia INoEA and 2nd International Meeting of Pediatric Airway Teams INPAT, Rome, Italy, 26-27 June 2019.
- Joint ALLSA/SATS/CWIG Congress 2019, CSIR Pretoria 26 – 28 July 2019. A practical approach to diagnosing PCD in South Africa. Corrosive injury of the trachea in children - L Mfingwana, P Goussard, J Morrison, J Janson, Z Ismail, R Wagenaar (L Mfingwana : Best oral presentation

by fellow in pediatric Pulmonology). A rare clinical presentation of complicated childhood Echinococcosis - L Mfingwana , P Goussard , L Morrison , J Janson (Poster )

- 3rd jENS Congress of joint European Neonatal Societies Pre Congress Course, 16-21 September 2019 (Invited speaker) Anatomy of upper and lower airways. Normal and abnormal.
- Paediatric Bronchoscopy, Naples, Italy, 7-9 October 2019 (Invited speaker)
  - Rigid bronchoscopy
  - Interventional bronchoscopy in children including foreign body extraction

#### **Dr Lunga Mfingwana**

- Joint ALLSA/SATS/CWIG Congress 2019, CSIR Pretoria 26 – 28 July 2019. Awarded best paediatric presentation - Title of presentation: Cotic ingestion injury of airway

#### **Prof Ronald van Toorn**

- Third International Tuberculous Meningitis research consortium, Lucknow India 2-3 March 2019. Invited speaker on “ Thalidomide in TB meningitis”
- Neonatal MRI workshop at University of Stellenbosch. 11 October 2019. Invited speaker on n “central grey matter injury is not synonymous with radiologically termed “acute profound” hypoxic ischemic injury.
- PANDA SA stroke Workshop University of Cape Town Sport science centre. Invited speaker “Update on neonatal stroke”.

#### **Prof Sharon Kling**

- Joint ALLSA/SATS/CWIG Congress 2019, CSIR Pretoria 26 – 28 July 2019. Invited speaker: “Aeroallergen avoidance in asthma – It does work!” and “Shared Decision making.”

#### **Prof Regan Solomons**

- Invited plenary speaker- CSF analysis in the diagnosis and prognosis of TBM. 3<sup>rd</sup> Tuberculous Meningitis International Consortium Meeting. 1-2 March 2019, Lucknow, India.

#### **Prof John Lawrenson**

- Invited speaker - CSI Africa 2019, 29-30 November 2019, Arusha, Tanzania.
  - Should VSD closure be performed in developing countries?
  - Patient selection for VSD closure

#### **Dr Cilla Springer**

- AIMS-2 Trials (Autism Research for Europe) annual general assembly at Fuerteventura, 12 June 2019. Presentation: Identifying biomarkers of neurodevelopmental outcome in the Safe Passage Study cohort – a feasibility study

#### **TBH Neonatology were actively involved in the success of biggest USANA conference held, the 4th Biennial USANA Conference held in Port Elizabeth, 12 – 15th September 2019**

- **Prof Johan Smith** – invited speaker -Pitfalls in practising neonatology
- **Dr Sandi Holgate** – invited speaker - Adverse events in NICU
- **Prof Angela Dramowski** – invited speaker:
  - Prevention of antibiotic-resistant infections in the neonate
  - Launch of Neonatal Sepsis Task Force
- **Dr Lizel Lloyd** – research presentation - Epidemiology of neonatal bloodstream infection among very low birth weight infants at a South African tertiary neonatal care unit
- **Dr Miemie du Preez** – research presentations :
  - The trajectory of general movements from birth until 12-14 weeks corrected age in preterm infants born before 33 weeks’ gestation and weighing less than 1500g: a descriptive study.
  - Will daily nursery rhyme reading by mothers improve maternal-infant interaction and neurodevelopment in preterm infants? a protocol for a quasiexperimental study

- **Dr Grace Musiime** – research presentation - Mortality and outcomes of extremely low birth weight infants in the first year of life: a retrospective cohort study
- **Dr Magriet van Niekerk** – research presentation - Late preterm infants' outcomes within the first week of life, born at Tygerberg hospital
- **Dr Tom Jones** – research presentation - The association between admission temperature and adverse outcomes in very low birthweight neonates admitted to a tertiary neonatal service in South Africa
- **Dr Gugu Kali** – research poster – Outcomes of infants with HIE treated with TH & with TH plus morphine
- **Sr A Jenkins** (NICU registered nurse) – research presentation - Evidence-based quality improvement for reducing a public sector neonatal intensive care unit

## Conferences Attended

### Prof Etienne Nel, Drs Utpol Chowdhury & Lindo Radebe

- 52nd Annual Meeting of The European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN), Glasgow, Scotland, 3-9 June 2019

### Profs Mariana Kruger & Helena Rabie

- AMC Pediatric HIV Malignancy Meeting, Amsterdam, The Netherlands, 9-10 July 2019

### Prof Mariana Kruger

- Attended The symposium “Interactions between the Environmental and human microbiota in the preservation of health and genesis of disease”, STIAS, Stellenbosch, 29 November 2019.

## Courses Organized

### Dr Gugu Kali

- Neonatal MRI symposium – 21 November 2019

## Courses Presented

### Prof Etienne Nel

- Spier Fellow Weekend 1-3 February 2019
- Paediatric Gastrointestinal endoscopy, Here be Lungs, March 2019, Spier

### Dr Penelope Rose

- Spier Fellow Weekend 1-3 February 2019

### Prof Ronald van Toorn

- British Paediatric neurology Association (BPNA) Paediatric Epilepsy Training (PET) course: member of the training faculty. 27 July 2019 University of Namibia, Windhoek., Namibia

### Prof R Solomons

- Paediatric Epilepsy Training (PET) 1, Pretoria, 2 February 2019

## Courses Attended

### PhD students attending African Doctoral Academy Winter School 2019:

- **Mr Glenn Mbah Afungchwi** – Introduction to SPSS, Good research practice: Research ethics and beyond and Introduction to qualitative data analysis with ATLAS.ti
- **Dr Anel van Zyl** - Introduction to SPSS
- **Dr Miemie du Preez** - Design and analysis of experimental data

### Dr Cilla Springer

- Writing a Literature Review by SU Language Centre, Stellenbosch, 23-24 April 2019



## **Publications**

### **Journal Articles (subsidised)**

1. ABDULCADIR J, ADLER PW, ALDERSON P, ALEXANDER S, AURENQUE D, BADER D, BEN-YAMI H, BEWLEY S, BODDY J, VAN DEN BRINK M, BRONSELAER G, BURRAGE H, KLING S, MOODLEY K, VAN NIEKERK AA, SIDLER D, ET AL ET AL. Medically Unnecessary genital cutting and the rights of the child: moving towards consensus. *AMERICAN JOURNAL OF BIOETHICS* 2019; **19**(10):17-28.
2. ABUBAKAR I, AKKERMAN OW, ALFFENAAR JWC, BLANC F-X, BORISOV S, BURGOS M, BURHAN E, CAMBAU E, LUNA JAC, CARVALHO AC, MELLO FCDQ, CENTIS R, SCHAAF HS, ET AL E. Evolution of Programmatic Definitions Used in Tuberculosis Prevention and Care. . *Clinical Infectious Diseases* 2019; **68**(10):1784-1787.
3. ABULFATHI AA, DECLOEDT EH, SVENSSON EM, DIACON AH, DONALD PR, REUTER H. Clinical Pharmacokinetics and Pharmacodynamics of Rifampicin in Human Tuberculosis. *CLINICAL PHARMACOKINETICS* 2019; **58**(9):1103-1129.
4. ACKERMANN C, ANDRONIKOU S, VAN TOORN R. Human immunodeficiency virus-related cerebral white matter disease in children. *Pediatric Radiology* 2019; **49**:652-662.
5. AFUNGCHWI GM, HESSELING PB, VAN ELSLAND SL, KOUYA F, KRUGER M. Destitution, treatment adherence and survival of children with Burkitt lymphoma in a twinning programme in Northwest Cameroon. *Pediatric Blood and Cancer* 2019; **66**(12):e27946.
6. AKURUGU WA, VAN HEERDEN CJ, VORSTER AA, LESOSKY M, ZÖLLNER EWA. Could a glucocorticoid receptor polymorphism be protective against hypothalamic-pituitary-adrenal axis suppression in asthmatic children on corticosteroids?. *Hormone Research in Paediatrics* 2019; **91**(suppl 1):127.
7. ALLWOOD BW, VAN DER ZALM MM, MAKANDA G, MORTIMER K. The long shadow post-tuberculosis. *Lancet. Infectious Diseases (Print)* 2019; **19**(11):1170-1171.
8. ARCHARY M, FAIRLIE L, SLOGROVE AL. Current perspectives on paediatric HIV management from the mexico international AIDS society conference, 2019. *Southern African Journal of HIV Medicine* 2019; **20**(1):a1027.
9. BASU ROY R, WHITTAKER E, SEDDON JA, KAMPMANN B. Tuberculosis susceptibility and protection in children. *Lancet. Infectious Diseases (Print)* 2019; **19**:e96-108.
10. BOCK PA, GUNST C, MASCHILLA L, HOLTMAN R, GROBBELAAR N, WADEMAN DT, DUNBAR R, FATTI GL, KRUGER J, FORD N, HODDINOTT G, MEEHAN S. Retention in care and factors critical for effectively implementing antiretroviral adherence clubs in a rural district in South Africa. *Journal of the International AIDS Society* 2019; **22**(10):1-11.
11. BOCK PA, JOUBERT KL, FATTI GL, SLOOT R, FORD N, VOGET J, GUNST C, GROBBELAAR N, LOUIS F, FLOYD S, HAYES R, AYLES H, BEYERS N, FIDLER S. Renal dysfunction by baseline CD4 cell count in a cohort of adults starting antiretroviral treatment regardless of CD4 count in the HIV Prevention Trials Network 071 [HPTN071; Population Effect of Antiretroviral Therapy to Reduce HIV Transmission (PopART)] study in South Africa. *HIV MEDICINE* 2019; **20**(6):392-403.
12. BOND V, NGWENYA F, KALK EK, NGWENYA N, VILJOEN L, GUMEDE D, BWALYA C, MANTANTANA J, HODDINOTT G, DODD PJ, AYLES H, SIMWINGA M, WALLMAN S, SEELEY J. Value and Limitations of Broad Brush Surveys Used in Community-Randomized Trials in Southern Africa. *Qualitative Health Research* 2019; **29**(5):700-718.
13. BOND V, NOMSENGE S, MWAMBA M, ZIBA D, BIRCH A, MUBEKAPI-MUSADAIDZWA C, VANQA N, VILJOEN L, PLIAKAS T, AYLES H, HARGREAVES JR, HODDINOTT G, STANGL A, SEELEY J. "Being seen" at the clinic: Zambian and South African health worker reflections on the relationship between health facility spatial organisation and items and HIV stigma in 21 health facilities, the HPTN 071 (PopART) study. *HEALTH & PLACE* 2019; **55**:87-99.

14. BRUGMAN J, SOLOMONS RS, LOMBARD CJ, REDFERN A, DU PLESSIS A. Risk-Stratification of children presenting to Ambulatory Paediatrics with first-onset seizures: Should we order an urgent CT brain?. *JOURNAL OF TROPICAL PEDIATRICS* 2019; **0**:1-16.
15. CHOTUN BN, STROBELE S, MAPONGA TG, ANDERSSON MI, NEL EDLR. Successful treatment of a South African paediatric case of acute liver failure caused by perinatal transmission of hepatitis B. *Pediatric Infectious Disease Journal* 2019; **38**(3):e51-e53.
16. CHRISTIAN CS, BURGER JW, CLAASSENS MM, BOND V, BURGER R. Patient predictors of health-seeking behaviour for persons coughing for more than two weeks in high-burden tuberculosis communities: the case of the Western Cape, South Africa. *BMC Health Services Research* 2019; **19**:160, 8 pages.
17. COTTON MF, LAUGHTON B, RABIE H. Should efavirenz be used in children and, if so, how?. *Lancet HIV* 2019; **6**:e210-e211.
18. COTTON MF, RABIE H, NEMES E, MUJURU H, BOBAT R, NJAU B, VIOLARI A, MAVÉ V, MITCHELL C, OLESKE J, ZIMMER B, VARGHESE G, PAHWA S. A prospective study of the immune reconstitution inflammatory syndrome (IRIS) in HIV-infected children from high prevalence countries. *PLoS One* 2019; **14**(7):e0211155.
19. COTTON MF, RABIE H. Is point-of-care early infant HIV diagnosis sustainable?. *Lancet HIV* 2019; **6**:e344-e345.
20. COTTON MF, RABIE H. What will it take to implement targeted HIV testing at birth?. *PEDIATRICS* 2019; **143**(6):e20190913.
21. CRESSWELL FV, DAVIS AG, SHARMA K, ROY RB, GANIEM AR, KAGIMU E, SOLOMONS RS, WILKINSON RJ, BAHR NC, THUONG NTT, SCHOEMAN JF, VAN TOORN R. Recent developments in tuberculous meningitis pathogenesis and diagnostics (version 1; peer review: awaiting peer review). *Wellcome Open Research* 2019; **4**(164):1-13.
22. DASKAPAN A, IDRUS LR, POSTMA MJ, WILFFERT B, KOSTERINK JGW, STIENSTRA Y, TOUW DJ, ANDERSEN AB, BEKKER A, DENTI P, KUMAR AKH, JEREMIAH K, KWARA A, MCILLERON H, ET AL E. A systematic review on the effect of HIV infection on the pharmacokinetics of first-line tuberculosis drugs. *CLINICAL PHARMACOKINETICS* 2019; **58**:747-766.
23. DAVIS AG, NIGHTINGALE S, SPRINGER PE, SOLOMONS RS, ARENIVAS A, WILKINSON RJ, ANDERSON ST, CHOW FC, SCHOEMAN JF, VAN TOORN R. Neurocognitive and functional impairment in adult and paediatric tuberculosis meningitis. *Wellcome Open Research* 2019; **4**(178):1-15.
24. DHEDA K, GUMBO T, MAARTENS G, DOOLEY KE, MURRAY M, FURIN J, NARDELL EA, WARREN RM, SCHAFF HS, HESSELING AC. The Lancet Respiratory Medicine Commission: 2019 update: epidemiology, pathogenesis, transmission, diagnosis, and management of multidrug-resistant and incurable tuberculosis. *Lancet Respiratory Medicine* 2019; **7**:820-826.
25. DIPPENAAR A, DE VOS M, MARX FM, ADROUB SA, VAN HELDEN PD, PAIN A, SAMPSON SL, WARREN RM. Whole genome sequencing provides additional insights into recurrent tuberculosis classified as endogenous reactivation by IS6110 DNA fingerprinting. *Infection, Genetics and Evolution* 2019; **75**(103948):1-6.
26. DROZ N, HSIA Y, ELLIS S, DRAMOWSKI A, SHARLAND M, BASMACI R. Bacterial pathogens and resistance causing community acquired paediatric bloodstream infections in low- and middle-income countries: a systematic review and meta-analysis. *Antimicrobial Resistance and Infection Control* 2019; **8**:207.
27. DU PREEZ K, SEDDON JA, SCHAFF HS, HESSELING AC, STARKE JR, OSMAN M, LOMBARD CJ, SOLOMONS RS. Global shortages of BCG vaccine and tuberculous meningitis in children. *Lancet Global Health* 2019; **7**:e28-e29.

28. FATTI GL, SHAIKH N, BOCK PA, NACHEGA JB, GRIMWOOD A. South African National Adherence Guidelines: need for revision?. *Tropical Medicine and International Health* 2019; **24**(10):1260-1262.
29. FRIGATI LJ, BEKKER A, STROBELE S, GOUSSARD P, SCHAAF HS. Culture-confirmed tuberculosis in South African infants younger than 3 months of age: clinical presentation and management of respiratory complications. *Pediatric Infectious Disease Journal* 2019; **38**(4):351-354.
30. FRIGATI LJ, BROWN K, MAHTAB S, GITHINJI LN, GRAY D, ZUHLKE L, NOURSE P, STEIN DJ, HOARE J, COTTON MF, MYER L, ZAR H. Multisystem impairment in South African adolescents with Perinatally acquired HIV on antiretroviral therapy (ART). *Journal of the International AIDS Society* 2019; **22**:e25386.
31. FRIGATI LJ, JAO J, MAHTAB S, AGYEI N-AA, COTTON MF, MYER L, ZAR H. Insulin Resistance in South African Youth living with perinatally acquired HIV receiving antiretroviral therapy. *AIDS Research and Human Retroviruses* 2019; **35**(1):56-62.
32. FRIGATI LJ, MAHTAB S, NOURSE P, RAY P, PERRAZZO S, MACHEMEDZE T, AGYEI N-AA, COTTON MF, MYER L, ZAR H. Prevalence of risk factors for chronic kidney disease in South African youth with perinatally acquired HIV. *PEDIATRIC NEPHROLOGY* 2019; **34**:313-318.
33. FRY S, BARNABAS SL, COTTON MF. Tuberculosis and HIV - An Update on the "cursed duet" in children. *Frontiers in Pediatrics* 2019; **7**(Article 159):1-12.
34. FUENTE-SORO L, INIESTA C, LOPEZ VARELA EB, CUNA M, GUILAZE R, MAIXENCHS M, BERNARDO EL, AUGUSTO O, GONZALEZ R, COUTO A, MUNGUAMBE K, NANICHE D. Tipping the balance towards long-term retention in the HIV care cascade: a mixed methods study in Southern Mozambique. *PLoS One* 2019; **14**(9):e0222028.
35. GARCIA-PRATS AJ, PURCHASE SE, OSMAN M, DRAPER HR, SCHAAF HS, WIESNER L, DENTI P, HESSELING AC. Pharmacokinetics, Safety, and Dosing of Novel Pediatric Levofloxacin Dispersible Tablets in Children with Multidrug-Resistant Tuberculosis Exposure. *Antimicrobial Agents and Chemotherapy* 2019; **63**(4):e01865-18.
36. GARCIA-PRATS AJ, SCHAAF HS, DRAPER HR, GARCIA-CREMADES M, WINCKLER JL, WIESNER L, HESSELING AC, SAVIC R M. Pharmacokinetics, optimal dosing, and safety of linezolid in children with multidrug-resistant tuberculosis: Combined data from two prospective observational studies. *PLOS MEDICINE* 2019; **16**(4):e1002789.
37. GITHINJI LN, MAHTAB S, ZUHLKE L, LAWRENSEN J, MYER L, GRAY DM, ZAR H. Cardiopulmonary dysfunction in perinatally HIV-infected South African adolescents on antiretroviral therapy: baseline findings from the Cape Town Adolescent Antiretroviral Cohort. *Journal of the International AIDS Society* 2019; **22**:e25340.
38. GOGA A, SLOGROVE AL, WEDDERBURN CJ, FEUCHT UD, WESSELS J, RAMOKOLO V, BHANA A, DU PLESSIS N, GREEN RJ, PILLAY Y, SHERMAN GG. Tuberculosis infection control in a South African rural regional hospital emergency centre: Prioritisation for patients and healthcare workers. *SAMJ South African Medical Journal* 2019; **109**(11b):77-82.
39. GOUSSARD P, GIE RP, JANSON JT, ANDRONIKOU S. Empyema necessitans in a six-month-old girl. *Paediatrics and International Child Health* 2019; **39**(3):224-226.
40. GOUSSARD P, GREEN L, JANSON JT, SCHUBERT P. Subcarinal bronchogenic cyst communicating with tracheal bronchial tree, misdiagnosed as Pulmonary Tuberculosis. *Pediatric Pulmonology* 2019; **54**(3):228-229.
41. GOUSSARD P, MFINGWANA L, MORRISON J, ISMAIL MZ, WAGENAAR R, JANSON JT. Corrosive injury of the trachea in children. *Clinical Case Reports* 2019; **7**:1999-2003.
42. GOUSSARD P, MORRISON J, BEKKER A, FOURIE B. Acquired neonatal bronchial stenosis after selective intubation: Successful managed with balloon dilatation. *Clinical Case Reports* 2019; **7**(5):917-919.

43. GOUSSARD P, RABIE H, MORRISON J, SCHUBERT P. Superinfection with Mycobacteria goodii in a young infant with exogenous lipid pneumonia. *Pediatric Pulmonology* 2019; **54**(9):1345-1347.
44. GROBBELAAR M, LOUW G, SAMPSON SL, VAN HELDEN PD, DONALD PR, WARREN RM. Evolution of rifampicin treatment for tuberculosis. *Infection, Genetics and Evolution* 2019; **74**(2019):1-9.
45. GUPTA A, HUGHES MD, GARCIA-PRATS AJ, MCINTIRE K, HESSELING AC. Inclusion of key populations in clinical trials of new antituberculosis treatments: Current barriers and recommendations for pregnant and lactating women, children, and HIV-infected persons. *PLoS Medicine* 2019; **16**(8):e1002882.
46. GUPTA A, MONTEPIEDRA G, AARON L, THERON GB, MCCARTHY K, BRADFORD S, CHIPATO T, VHEMBO T, STRANIX-CHIBANDA L, ONYANGO-MAKUMBI C, MASHETO G, VIOLARI A, HESSELING AC, ET AL E. Isoniazid Preventive Therapy in HIV-Infected Pregnant and Postpartum Women. *NEW ENGLAND JOURNAL OF MEDICINE* 2019; **381**:1333-1346.
47. HAYES R, DONNELL D, FLOYD S, MANDLA NF, BWALYA J, SABAPATHY K, YANG B, PHIRI M, SCHAAP AB, ESHLEMAN SH, PIWOWAR-MANNING E, KOSLOFF B, JAMES A, DUNBAR R, MAKOLA NJ, HODDINOTT G, BOCK PA, BEYERS N, ET AL E. Effect of Universal Testing and Treatment on HIV Incidence — HPTN 071 (PopART). *NEW ENGLAND JOURNAL OF MEDICINE* 2019; **381**:207-218.
48. HONETH IE, LAUGHTON B, PRETORIUS C, SPRINGER PE, COTTON MF. Diagnostic accuracy of the Molteno Adapted Scale for developmental delay in South African toddlers. *Paediatrics and International Child Health* 2019; **39**(2):132-138.
49. HUFNAGEL M, VERSPORTEN A, BIELICKI J, DRAPIER N, SHARLAND M, GOOSSENS H, DRAMOWSKI A, FINLAYSON H. High Rates of Prescribing Antimicrobials for Prophylaxis in Children and Neonates: Results From the Antibiotic Resistance and Prescribing in European Children Point Prevalence Survey. *Journal of the Pediatric Infectious Diseases Society* 2019; **8**(2):143-151.
50. HUGHES JA, REUTER A, CHABALALA B, ISAAKIDIS P, COX HS, MOHR E. Adverse events among people on Delamanid for rifampicin-resistant tuberculosis in a high HIV prevalence setting. *International Journal of Tuberculosis and Lung Disease* 2019; **23**(9):1017-1023.
51. JANSE VAN RENSBURG S, PEETERS AV, VAN TOORN R, SCHOEMAN JF, MOREMI KE, VAN HEERDEN CJ, KOTZE MJ. Identification of an iron-responsive subtype in two children diagnosed with relapsing-remitting multiple sclerosis using whole exome sequencing. *Molecular Genetics and Metabolism Reports* 2019; **19**:100465, 8 pages.
52. JEETOO SD, PITCHER RD, SMITH J. Radiological studies in very low birth weight and extremely low birth weight neonates: 'ALARA' revisited. *JOURNAL OF TROPICAL PEDIATRICS* 2019; **0**:1-9.
53. KAJEE Z, HARVEY J, ZÖLLNER EWA. The impact of a diabetes care team on the glycaemic control of paediatric and adolescent patients with type 1 diabetes mellitus at Tygerberg Children's Hospital. *South African Journal of Child Health* 2019; **13**(1):11-16.
54. KAMAT AS, GRETSCHER A, VLOK AJ, SOLOMONS RS. Reply to "Cerebrospinal fluid protein and shunt obstruction in tuberculous meningitis". *International Journal of Tuberculosis and Lung Disease* 2019; **23**(6):767-768.
55. KESHAVJEE S, AMANULLAH F, CATTAMANCHI A, CHAISSON RE, DOBOS KM, FOX GJ, GENDELMAN HE, GORDON R, HESSELING AC, LE VAN H, KAMPMANN B, KANA BD, SEDDON JA. Moving Toward tuberculosis elimination: Critical issues for research in diagnostics and therapeutics for tuberculosis infection. *American Journal of Respiratory and Critical Care Medicine* 2019; **199**(5):564-571.
56. KHALEK ER, AFUNGCHWI GM, BELTAGY ME, MARIAM N, ZAKI H, ISRAELS T, MOLYNEUX E, HOWARD SC, PATTE C, SCHOEMAN J, LADAS EJ, ZAGHLOUL MS, ET AL E. Highlights from the 13th african continental meeting of the international society of paediatric oncology (SIOP). *ecancermedicalscience* 2019; **13**:932.

57. KHAN PY, YATES TA, OSMAN M, WARREN RM, VAN HEIJDEN Y, PADAYATCHI N, NARDELL EA, MOORE D, MATHEMA B, GANDHI NR, ELDHOLM V, DHEDA K, HESSELING AC. Transmission of drug-resistant tuberculosis in HIV-endemic settings. *Lancet. Infectious Diseases (Print)* 2019; **19**:e77-88.
58. KLING S. Back to basics in clinical ethics. *Current Allergy and Clinical Immunology* 2019; **32**(4):238-240.
59. KLING S. Challenging beliefs: Social medial and professionalism. *Current Allergy and Clinical Immunology* 2019; **32**(3):176-178.
60. KLING S. Ethics and the microbiome. *Current Allergy and Clinical Immunology* 2019; **32**(2):101-103.
61. KLING S. Ethics, the law and smoke-free work environments. *Current Allergy and Clinical Immunology* 2019; **32**(1):44-47.
62. KORF M, HOFFMANN M, ZÖLLNER EWA, ERASMUS RT, ZEMLIN A. Case Report: An index of suspicion in hyponatraemia. *Biochemia Medica* 2019; **29**(1):011002.
63. KRUGER M, MAKIWANE MM, RAMOROKA S, VAN ELSLAND SL, LAWRENCE KA, ROSENKRANZ BF. Off-label Use in Ambulatory Paediatric Clinicsin a Central South African Hospital. *JOURNAL OF TROPICAL PEDIATRICS* 2019; **65**:380-388.
64. LANGE C, AARNOUTSE RE, ALFFENAAR JWC, BOTHAMLEY G, BRINKMANN F, DA COSTA JC, CHESOV D, VAN CREVEL R, DEDICOAT M, DOMINGUEZ J, DUARTE R, GROBBEL HP, SCHAAF HS, ET AL E. Management of patients with multidrug-resistant tuberculosis. *International Journal of Tuberculosis and Lung Disease* 2019; **23**(6):645-662.
65. LAUGHTON B, NAIDOO S, DOBBELS EFM, BOIVIN M, JANSE VAN RENSBURG A, GLASHOFF RH, VAN ZYL GU, KRUGER M, COTTON MF. Neurodevelopment at 11 months after starting antiretroviral therapy within 3 weeks of life. *Southern African Journal of HIV Medicine* 2019; **20**(1):a1008.
66. LOVEDAY M, REUTER A, FURIN J, SEDDON JA, COX HS. The STREAM Trial: missed opportunities and lessons for future clinical trials. *Lancet. Infectious Diseases (Print)* 2019; **19**:351-353.
67. LUTWICK L, AL-MAANI AS, MEHTAR S, MEMISH Z, ROSENTHAL VD, DRAMOWSKI A, LUI G, OSMAN T, BULABULA ANH, BEARMAN G. Managing and preventing vascular catheter infections: A position paper of the international society for infectious diseases. *International Journal of Infectious Diseases* 2019; **84**:22-29.
68. MAHWIRE TC, DZIKITI M, MARUKUTIRA T, NAIDOO P. Impact of Xpert MTB/RIF assay on multidrug-resistant tuberculosis treatment outcomes in a health district in South Africa. *SAMJ South African Medical Journal* 2019; **109**(4):259-263.
69. MAKIWANE MM, DECLOEDT EH, CHIREHWA MT, ROSENKRANZ BF, KRUGER M. Adverse Drug Reactions in Paediatric In-Patients in a South African Tertiary Hospital. *JOURNAL OF TROPICAL PEDIATRICS* 2019; **65**(4):389-396.
70. MANYELO MC, SOLOMONS RS, SNYDERS CI, MANNGO M, MUTAVHATSINDI H, KRIEL BA, STANLEY K, WALZL G, CHEGOU NN. Application of Cerebrospinal Fluid Host Protein Biosignatures in the Diagnosis of Tuberculous Meningitis in Children from a High Burden Setting. *Mediators of Inflammation* 2019; **2019**:ID 7582948, 11 pages.
71. MANYELO MC, SOLOMONS RS, SNYDERS CI, MUTAVHATSINDI H, MANNGO M, STANLEY K, WALZL G, CHEGOU NN. Potential of host serum protein biomarkers in the diagnosis of tuberculous meningitis in children. *Frontiers in Pediatrics* 2019; **7**(Article 376):1-12.
72. MARAIS BJ, VAN TOORN R, FIGAJI T, THWAITES GE. Reply to Baxter. *Clinical Infectious Diseases* 2019; **69**(4):736.
73. MARAIS S, VAN TOORN R, CHOW FC, MANESH A, SIDDIQI OK, FIGAJI A, SCHOEMAN JF, MEINTJES G. Management of intracranial tuberculous mass lesions: how long should we treat for?. *Wellcome Open Research* 2019; **4**:158.

74. MARX FM, COHEN T, LOMBARD CJ, HESSELING AC, DLAMINI SS, BEYERS N, NAIDOO P. Notification of relapse and other previously treated tuberculosis in the 52 health districts of South Africa. *International Journal of Tuberculosis and Lung Disease* 2019; **23**(8):891-899.
75. MCCLUNAN K, VAN NIEKERK E, DHANSAY MN. Factors affecting body composition in preterm births: Assessment techniques and nutritional interventions. *Pediatrics and Neonatology* 2019; **60**:121-128.
76. MEYERS T, SAMSON P, ACOSTA EP, MOYE J, TOWNLEY E, BRADFORD S, MARILLO L, DENSON K, HOVIND L, SISE T, TEPLER H, MATHIBA SR, MASENYA M, HESSELING AC, COTTON MF, KROGSTAD P. Pharmacokinetics and safety of a raltegravir-containing regimen in HIV-infected children aged 2-12 years on rifampicin for tuberculosis. *AIDS* 2019; **33**:2197-2203.
77. MOHIYUDDIN T, SEDDON JA, THOMAS L, LALOR MK. The changing landscape of childhood tuberculosis in the United Kingdom: a retrospective cohort (2000 to 2015). *Pediatric Infectious Disease Journal* 2019; **38**(5):470-475.
78. MOTAZE NV, MANAMELA J, SMIT S, RABIE H, HARPER K, DU PLESSIS N, REUBENSON G, COETZEE MPA, BALLOT D, MOORE DP, NUTTALL J, TOOKE L, PREISER W, ET AL E. Congenital Rubella Syndrome Surveillance in South Africa Using a Sentinel Site Approach: A Cross-sectional Study. *Clinical Infectious Diseases* 2019; **68**(10):1658-1664.
79. NAHID P, MASE SR, MIGLIORI GB, SOTGIU G, BOTHAMLEY G, BROZEK JL, CATTAMANCHI A, CEGIELSKI JP, CHEN L, DALEY CL, DALTON TL, DUARTE R, SCHAAF HS, ET AL E. Treatment of Drug-Resistant Tuberculosis. An Official ATS/CDC/ERS/IDSA Clinical Practice Guideline. *American Journal of Respiratory and Critical Care Medicine* 2019; **200**(10):e93-e142.
80. NDARUKWA V, DZIKITI M. Combination antiretroviral treatment use in prevention of mother-to-child transmission programmes: 6-week HIV prevalence and relationship to time of antiretroviral treatment initiation and mixed feeding. *Southern African Journal of Infectious Diseases (Formerly Southern African Journal of Epidemiology and Infection)* 2019; **34**(1):a117, 5 pages.
81. OSMAN M, HARAUSZ EP, GARCIA-PRATS AJ, SCHAAF HS, MOORE BK, HICKS RM, ACHAR J, AMANULLAH F, BARRY PM, BECERRA C, CHIOTAN DI, DROBAC PC, FLOOD J, SEDDON JA, HESSELING AC. Treatment Outcomes in Global Systematic Review and Patient Meta-Analysis of Children with Extensively Drug-Resistant Tuberculosis. *Emerging Infectious Diseases* 2019; **25**(3):441-450.
82. OSMAN M, WELTE A, DUNBAR R, BROWN RA, HODDINOTT G, HESSELING AC, MARX FM. Morbidity and mortality up to 5 years post tuberculosis treatment in South Africa: A pilot study. *International Journal of Infectious Diseases* 2019; **85**:57-63.
83. PATTEN G, SCHOMAKER M, DAVIES M-A, RABIE H, VAN ZYL GU, TECHNAU K, ELEY B, BOULLE A, VAN DYKE RB, PATEL K, SIPAMBO N, WOOD R, TANSER F, GIDDY J, COTTON MF, ET AL E. What Should We Do When HIV-positive Children Fail First-line Combination Antiretroviral Therapy? A Comparison of 4 ART Management Strategies. *Pediatric Infectious Disease Journal* 2019; **38**(4):400-405.
84. PAYNE H, CHAIN G, ADAMS S, HUNTER P, LUCKHURST N, GILMOUR K, LEWIS J, BABIKER A, COTTON MF, VIOLARI A, GIBB DM, CALLARD R, KLEIN NJ. Naive B Cell output in HIV-infected and HIV-uninfected children. *AIDS Research and Human Retroviruses* 2019; **35**(1):33-39.
85. PENAZZATO M, TOWNSEND CL, RAKHMANINA N, ARCHARY M, CRESSEY TR, KIM MH, MUSIIME V, TURKOVA A, RUEL TD, RABIE H, SUGANDHI N, DOHERTY M, ET AL E. Prioritising the most needed paediatric antiretroviral formulations: the PADO4 list. *Lancet HIV* 2019; **6**:e623-31.
86. POWIS KM, SLOGROVE AL, OKORAFOR I, MILLEN L, POSADA R, CHILDS J, ABRAMS EJ, SPERLING RS, JAO J. Maternal perinatal HIV infection is associated with increased infectious morbidity in HIV-exposed uninfected infants. *Pediatric Infectious Disease Journal* 2019; **38**(5):500-502.

87. PURCHASE SE, GARCIA-PRATS AJ, DE KOKER P, DRAPER HR, OSMAN M, SEDDON JA, SCHAAF HS, HESSELING AC. Acceptability of a Novel Levofloxacin Dispersible Tablet Formulation in Young Children Exposed to Multidrug-Resistant Tuberculosis. *Pediatric Infectious Disease Journal* 2019; **38**(6):608-610.
88. RABIE H, COTTON MF, DRAMOWSKI A. Essential metrics for high-quality reporting of neonatal sepsis research in low-resource settings. *Lancet. Infectious Diseases (Print)* 2019; **19**(11):1155-1157.
89. RABIE H, DENTI P, LEE J, MASANGO M, COOVADIA A, PILLAY S, LIBERTY A, SIMON F, MCILLERON H, COTTON MF, LALLEMANT M. Lopinavir-ritonavir super-boosting in young HIV-infected children on rifampicin-based tuberculosis therapy compared with lopinavir-ritonavir without rifampicin: a pharmacokinetic modelling and clinical study. *Lancet HIV* 2019; **6**(1):e32-e42.
90. RABIE H, RAWIZZA H, ZUIDEWIND P, WINCKLER J, ZAR H, VAN RIE A, WIESNER L, MCILLERON H. Pharmacokinetics of adjusted-dose 8-hourly lopinavir/ritonavir in HIV-infected children co-treated with rifampicin. *Journal of Antimicrobial Chemotherapy* 2019; **74**(8):2347-2351.
91. RABIE H, SLOGROVE AL, BWAKURA-DANGAREMBIZI M. Reviewing co-trimoxazole for HIV-exposed, uninfected infants. *Lancet* 2019; **7**:e1599-e1600.
92. RADTKE KK, DOOLEY KE, DODD PJ, GARCIA-PRATS AJ, MCKENNA L, HESSELING AC, SAVIC R M. Alternative dosing guidelines to improve outcomes in childhood tuberculosis: a mathematical modelling study. *The Lancet Child and Adolescent Health* 2019; **3**(9):636-645.
93. RAMOKOLO V, GOGA A, SLOGROVE AL, POWIS K. Unmasking the vulnerabilities of uninfected children exposed to HIV. *BMJ (British Medical Journal)* 2019; **366**:14479.
94. RASDIEN U, REDFERN A, SPRINGER PE. Comparison of the demographic and diagnostic profile of new patients attending a neurodevelopmental clinic in 2008/2009 and 2016. *South African Journal of Child Health* 2019; **13**(1):6-10.
95. REID MJA, ARINAMINPATHY N, BLOOM A, BLOOM BR, BOEHME C, CHAISSON RE, CHIN DP, CHURCHYARD G, COX HS, DITIU L, DYBUL M, FARRAR J, SEDDON JA, ET AL E. 'Building a tuberculosis-free world: The Lancet Commission on tuberculosis. *Lancet* 2019; **393**:1331-1384.
96. REMENYI B, CARAPETIS J, STIRLING JW, FERREIRA B, KUMAR K, LAWRENSON J, MARIJON E, MIRABEL M, MOCUMBI AO, MOTA C, PAAR J, SAXENA A, ET AL E. Inter-rater and intra-rater reliability and agreement of echocardiographic diagnosis of rheumatic heart disease using the World Heart Federation evidencebased criteria. *Heart Asia* 2019; **11**:e011233.
97. REUTER A, HUGHES JA, FURIN J. Challenges and Controversies in Childhood Tuberculosis. *Lancet* 2019; **394**:967-978.
98. ROHLWINK U, FIGAJI A, WILKINSON KA, HORSWELL F, SESAY AK, DEFFUR A, ENSLIN N, SOLOMONS RS, VAN TOORN R, ELEY B, LEVIN M, WILKINSON RJ, LAI RP. Tuberculous meningitis in children is characterized by compartmentalized immune responses and neural excitotoxicity. *Nature Communications* 2019; **10**:3767.
99. RUISEÑOR-ESCUADERO H, FAMILIAR I, NYAKATO M, KUTESSA A, NAMUKOOLI J, SSESANGA T, JOYCE C, LAUGHTON B, GRAB J, CHERNOFF M, VHEMBO T, FAIRLIE L, ET AL E. Building capacity in neurodevelopment assessment of children in sub-Saharan Africa: A quality assurance model to implement standardized neurodevelopment testing. *CHILD NEUROPSYCHOLOGY* 2019; **25**(4):466-481.
100. SCHAAF HS, MARAIS BJ. The Role of Xpert MTB/RIF Ultra in Diagnosing Pulmonary Tuberculosis in Children. *American Journal of Respiratory and Critical Care Medicine* 2019; **200**(12):1464-1465.
101. SCHAAF HS. Diagnosis and management of multidrug-resistant tuberculosis in children: A practical approach. *INDIAN JOURNAL OF PEDIATRICS* 2019; **86**(8):717-724.
102. SCHOEMAN J, LADAS EJ, ROGERS PC, ARYAL S, KRUGER M. Unmet needs in nutritional care in African paediatric oncology units. *JOURNAL OF TROPICAL PEDIATRICS* 2019; **65**(4):397-404.

103. SCHOONEES A, LOMBARD MJ, MUSEKIWA A, NEL EDLR, VOLMINK JA. Ready-to-use therapeutic food (RUTF) for home-based nutritional rehabilitation of severe acute malnutrition in children from six months to five years of age. *Cochrane Database of Systematic Reviews* 2019; **2019**(5):1-228.
104. SCOTT D, SCOTT C, JELSMA J, ABRAHAM DR, VERSTRAETE J. Validity and feasibility of the self-report EQ-5D-Y as a generic health-related quality of life outcome measure in children and adolescents with juvenile idiopathic arthritis in western cape, South Africa. *South African Journal of Physiotherapy* 2019; **75**(1):a1335.
105. SEDDON JA, THWAITES GE. Tuberculous meningitis: New tools and new approaches required . *Wellcome Open Research* 2019; **4**:181.
106. SEDDON JA, TUGUME L, SOLOMONS RS, PRASAD K, BAHR NC, SCHOEMAN JF, VAN TOORN R. The current global situation for tuberculous meningitis: epidemiology, diagnostics, treatment and outcomes. *Wellcome Open Research* 2019; **4**(167):1-12.
107. SEDDON JA, WHITTAKER E, KAMPMANN B, LEWINSOHN DA, OSMAN M, HESSELING AC, RUSTOMJEE R, AMANULLAH F. The evolving research agenda for paediatric tuberculosis infection. *Lancet. Infectious Diseases (Print)* 2019; **19**:e322-29.
108. SEELEY J, BOND V, YANG B, FLOYD S, MACLEOD D, VILJOEN L, PHIRI M, SIMUYABA M, HODDINOTT G, SHANAUBE K, BWALYA C, DE VILLIERS BL, DUNBAR R, BOCK PA, ET AL E. Understanding the Time Needed to Link to Care and Start ART in Seven HPTN 071 (PopART) Study Communities in Zambia and South Africa. *AIDS and Behavior* 2019; **23**:929-946.
109. SHIDHIKA FF, HUGO-HAMMAN CT, LAWRENSON J, DU TOIT HJ, VOSLOO SM, BROOKS A, PRIBUT HS, PERKINS SR, ZUHLKE L. The Namibian Children’s Heart Project: a South-South partnership to provide cardiac care. *CARDIOLOGY IN THE YOUNG* 2019; **29**(2):206-213.
110. SHIH Y, AYLES H, LÖNNROTH K, CLAASSENS MM, LIN H. Development and validation of a prediction model for active tuberculosis case finding among HIV-negative/unknown populations. *Nature* 2019; **9**:6143.
111. SIMANI OE, IZU A, NUNES MC, VIOLARI A, COTTON MF, VAN NIEKERK N, ADRIAN PV, MADHI SA. Effect of HIV exposure and timing of antiretroviral therapy initiation on immune memory responses to diphtheria, tetanus, whole cell pertussis and hepatitis B vaccines. *Expert Review of Vaccines* 2019; **18**(1):95-104.
112. SLOGROVE AL, JOHNSON LF, POWIS K. Population-level mortality associated with HIV exposure in HIV-uninfected infants in Botswana and South Africa: A model-based evaluation. *JOURNAL OF TROPICAL PEDIATRICS* 2019; **65**(4):373-379.
113. SLOGROVE AL, POWIS K. Fetal origins of postnatal growth faltering in HIV-exposed uninfected children. *The Lancet Child and Adolescent Health* 2019; **3**(4):201-203.
114. SLOGROVE AL, POWIS KM, COTTON MF. Human Immunodeficiency Virus–exposed Uninfected Infants: Surviving and Thriving or Overlooked by Success?. *Clinical Infectious Diseases* 2019; **68**(12):2156-2158.
115. SLOGROVE AL, POWIS KM, ZASH R. Methodological considerations in evaluating pregnancy outcomes in women living with HIV. *Journal of Acquired Immune Deficiency Syndromes* 2019; **81**(2):e63-e64.
116. SLOGROVE AL, POWIS KM. Investment long overdue in primary studies of HIV-exposed uninfected infant infectious morbidity. *Pediatric Infectious Disease Journal* 2019; **38**(7):e164-e165.
117. SLOGROVE AL. Being prepared to evaluate pregnancy PrEP. *Journal of the International AIDS Society* 2019; **22**:e25435.
118. SNYMAN Y, WHITELAW AC, REUTER S, DRAMOWSKI A, MALOBA MRB, NEWTON-FOOT M. Clonal expansion of colistin-resistant *Acinetobacter baumannii* isolates in Cape Town, South Africa. *International Journal of Infectious Diseases* 2019; **91**:94-100.



119. SPRINGER PE, SLOGROVE AL, KIDD M, KALK EK, BETTINGER JA, ESSER M, COTTON MF, ZUNZA M, MOLTENO CD, KRUGER M. Neurodevelopmental and behavioural outcome of HIV-exposed uninfected and HIV-unexposed children at 2-3 years of age in Cape Town, South Africa. *AIDS Care - Psychological and Socio-Medical Aspects of AIDS/HIV* 2019; **0**:0.
120. SPRINGER PE, SLOGROVE AL, KIDD M, KALK EK, BETTINGER JA, ESSER MM, COTTON MF, MOLTENO CD, KRUGER M. Neurodevelopmental and behavioural outcomes of HIV-exposed uninfected and HIV-unexposed children at 2-3 years of age in Cape Town, South Africa. *2D Materials* 2020; **1**:1.
121. STANGL A, LILLESTON PS, MATHEMA HT, PLIAKAS T, KRISHNARATNE S, SIEVWRIGHT K, FUNDA S, VERMAAK R, MAINGA T, STEINHAUS M, DONNELL D, SCHAAP AB, BOCK PA, HODDINOTT G, ET AL E. Development of parallel measures to assess HIV stigma and discrimination among people living with HIV, community members and health workers in the HPTN 071 (PopART) trial in Zambia and South Africa. *Journal of the International AIDS Society* 2019; **22**:e25421.
122. SVENSSON EM, DU BOIS J, KITSHOFF R, DE JAGER V, WIESNER L, NORMAN J, NACHMAN S, SMITH B, DIACON AH, HESSELING AC, GARCIA-PRATS AJ. Relative bioavailability of bedaquiline tablets suspended in water: implications for dosing in children. *BRITISH JOURNAL OF CLINICAL PHARMACOLOGY* 2019; **84**:2384-2392.
123. TANUMIHARDJO SA, KALIWILO C, BOY E, DHANSAY MA, VAN STUIJVENBERG ME. Overlapping vitamin A interventions in the United States, Guatemala, Zambia, and South Africa: case studies. *Annals of the New York Academy of Sciences* 2019; **1446**:102-116.
124. THOMAS R, FRIEBEL R, BARKER K, MWENGE L, KANEMA S, VANQA N, HARPER A, BELL-MANDLA N, SMITH PC, FLOYD S, BOCK PA, AYLES H, FIDLER S, HAYES R, HAUCK K. Work and home productivity of people living with HIV in Zambia and South Africa. *AIDS* 2019; **33**:1063-1071.
125. VAN DER HEIJDEN YF, HUGHES JA, DOWDY D, STREICHER EM, CHIHOTA VN, JACOBSON KR, WARREN RM, THERON GDV. Overcoming limitations of tuberculosis information systems: researcher and clinician perspectives. *Public Health Action* 2019; **9**(3):120-127.
126. VAN DER WESTHUIZEN FP, SLOGROVE AL, KUNNEKE H, KRUGER M. Factors associated with severe dehydrating diarrhoea in the Rural Western Cape, South Africa. *JOURNAL OF TROPICAL PEDIATRICS* 2019; **65**(1):1-8.
127. VAN ELSLAND S, PETERS RPH, GROBBELAAR CJ, KETELO P, KOK MO, COTTON MF, VAN FURTH AM. Disclosure of human immunodeficiency virus status to children in South Africa: A comprehensive analysis. *Southern African Journal of HIV Medicine* 2019; **20**(1):a884.
128. VAN ELSLAND SL, PETERS RPH, GROBBELAAR CJ, KETELO P, KOK MO, COTTON MF, VAN FURTH AM. Paediatric ART adherence in South Africa: A comprehensive analysis. *AIDS and Behavior* 2019; **23**:475-488.
129. VAN HEERDEN J, HENDRICKS M, GEEL JA, SARTORIUS B, HADLEY GP, DU PLESSIS J, BUCHNER A, NAIDU G, VAN EMMENES B, VAN ZYL A, KRUGER M. Overall survival for neuroblastoma in South Africa between 2000 and 2014. *Pediatric Blood and Cancer* 2019; **e27944**:1-12.
130. VAN LEEUWEN L, VERSTEEGEN P, ZAHARIE SD, VAN ELSLAND SL, JORDAAN AJ, STREICHER EM, WARREN RM, VAN DER KUIP M, VAN FURTH AM. Bacterial Genotyping of Central Nervous System Tuberculosis in South Africa: Heterogenic Mycobacterium tuberculosis Infection and Predominance of Lineage 4. *Journal of Clinical Microbiology* 2019; **57**(8):1-10.
131. VAN RENSBURG L, VAN ZYL JM, SMITH J, GOUSSARD P. Effect of exogenous surfactant on Paediatric Bronchoalveolar lavage derived macrophages' cytokine secretion. *BMC Pulmonary Medicine* 2019; **19**:236.
132. VAN STUIJVENBERG ME, DHANSAY MA, NEL J, SURI D, GRAHN M, DAVIS CR, TANUMIHARDJO SA. Southern African preschool children habitually consuming sheep liver and exposed to vitamin A supplementation and fortification have hypervitaminotic A liver stores: a cohort study. *AMERICAN JOURNAL OF CLINICAL NUTRITION* 2019; **110**:91-101.

133. VAN STUIJVENBERG ME, SCHOEMAN SE, NEL J, LE ROUX M, DHANSAY MA. Liver is widely eaten by preschool children in the Northern Cape province of South Africa: Implications for routine vitamin A supplementation. *Maternal and Child Nutrition* 2019; **1**:e12931.
134. VAN WYK L, SMITH J, HALL M. Neonatal hypotension survey: A South African perspective. *South African Journal of Child Health* 2019; **13**(2):73-77.
135. VANKER A, NDURU PM, BARNETT W, DUBE F, SLY PD, GIE RP, NICOL MP, ZAR HJ. Indoor air pollution and tobacco smoke exposure: impact on nasopharyngeal bacterial carriage in mothers and infants in an African birth cohort study. *European Respiratory Journal* 2019; **5**:00052-2018.
136. VELDSMAN KA, JANSE VAN RENSBURG A, ISAACS S, NAIDOO S, LAUGHTON B, LOMBARD CJ, COTTON MF, MELLORS JW, VAN ZYL GU. HIV-1 DNA decay is faster in children who initiate ART shortly after birth than later. *Journal of the International AIDS Society* 2019; **22**:e25368.
137. VIEIRA VA, ZUIDEWIND P, MUENCHHOFF M, ROIDER J, MILLAR J, CLAPSON M, VAN ZYL A, SHINGADIA D, ADLAND E, ATHAVALE R, GRAYSON N, COTTON MF, GOULDER P. Strong sex bias in elite control of paediatric HIV infection. *AIDS* 2019; **33**(1):67-75.
138. VIOLARI A, COTTON MF, KUHN L, SCHRAMM DB, PAXIMADIS M, LOUBSER S, SHALEKOFF S, DA COSTA DIAS D, OTWOMBE K, LIBERTY A, MCINTYRE JA, BABIKER A, ET AL E. A child with perinatal HIV infection and long-term sustained virological control following antiretroviral treatment cessation. *Nature Communications* 2019; **10**:412.
139. WADEMAN DT, BUSAKWE L, NICHOLSON T, VAN DER ZALM MM, PALMER M, WORKMAN JJ, TURKOVA A, CROOK AM, THOMASON MJ, GIBB DM, SEELEY J, HESSELING AC, HODDINOTT G. Acceptability of a first-line antituberculosis formulation for children: qualitative data from the SHINE trial. *International Journal of Tuberculosis and Lung Disease* 2019; **23**(12):1263-1268.
140. WALTERS E, VAN DER ZALM MM, DEMERS A, WHITELAW DA, PALMER M, BOSCH C, DRAPER HR, SCHAAF HS, GOUSSARD P, LOMBARD CJ, GIE RP, HESSELING AC. Specimen Pooling as a Diagnostic Strategy for Microbiologic Confirmation in Children With Intrathoracic Tuberculosis. *Pediatric Infectious Disease Journal* 2019; **38**(6):e128-e131.
141. WHITTAKER E, LOPEZ VARELA EB, BRODERICK C, SEDDON JA. Examining the Complex Relationship between Tuberculosis and other Infectious Diseases in Children: A Review. *Frontiers in Pediatrics* 2019; **7**:Article 233.
142. WILLOUGHBY ML, BASERA W, PERKINS SR, COMITIS G, FOURIE B, LAWRENSON J, ZUHLKE L. Infective endocarditis in infants and children in the Western Cape, South Africa: a retrospective analysis. *CARDIOLOGY IN THE YOUNG* 2019; **29**(10):1282-1286.
143. ZENHAUSERN J, BEKKER A, WATES M, SCHAAF HS, DRAMOWSKI A. Tuberculosis transmission in a hospitalised neonate: Need for optimised tuberculosis screening of pregnant and postpartum women. *SAMJ South African Medical Journal* 2019; **109**(5):310-313.
144. ZÖLLNER EWA. Asthma treatment in children: A guide to screening for and management of hypothalamic-pituitary-adrenal axis suppression. *SAMJ South African Medical Journal* 2019; **109**(5):306-309.
145. ZÖLLNER EWA. Is adrenal suppression in asthmatic children reversible?. *Journal of Endocrinology, Metabolism and Diabetes of South Africa (JEMDSA)* 2019; **23**(3):561.
146. ZUHLKE L, LAWRENSON J, COMITIS G, DE DECKER R, BROOKS A, FOURIE B, SWANSON L. Congenital Heart Disease in Low- and Lower-Middle- Income Countries: Current Status and New Opportunities. *Current Cardiology Reports* 2019; **21**(12):163.
- Journal Articles (NON-subsidised)**
147. LE ROUX C, DRAMOWSKI A. South African Undergraduate Health Science Students' Knowledge, Attitudes, Practices and Preferences Regarding Vaccination. *Wits Journal of Clinical Medicine* 2019; **1**(2):81-88.

148. WHARIN P, HESSELING PB, KOUYA F, KAAH J, AFUNGCHWI GM. An attempt to deliver home-based palliative care to children with cancer in Sub-Saharan African villages-Our Cameroon experience. *Palliative Medicine & Care International Journal* 2019; **2**(3):1-3.

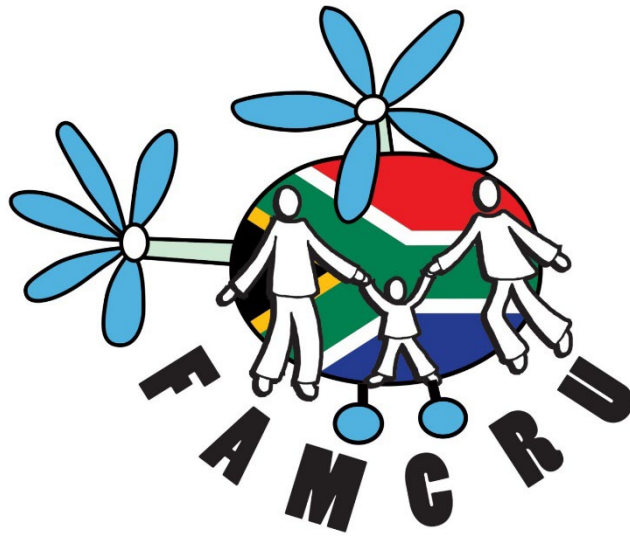
**Published full-length conference papers/keynote addresses**

149. Van Heerden JJ, Hadley GP, Hendricks M, Geel J, Sartorius B, Buchner A, Naidu G, Du Plessis J, Van Emmenes B, Van Zyl A, M. Kruger M. The Prognostic Significance of Surgery and Radiotherapy for Cure in High Risk Neuroblastoma in South Africa. *Pediatr Blood Cancer* 2019; **66**(Suppl. 4):e27989: S85.
150. Van Heerden JJ, Hendricks M, Geel J, Sartorius B, Hadley GP, Du Plessis J, Buchner A, Naidu G, Van Emmenes B, van Zyl A, Kruger M. Neuroblastoma Management in South Africa Between 2000 and 2014. *Pediatr Blood Cancer* 2019; **66**(Suppl. 4):e27989: S145.
151. Hendricks M, Cois A, Geel J, du Plessis J, Bassingthwaighte M, Naidu G, Rowe B, Buchner A, Omar F, Thomas K, Uys R, van Zyl A, Van Heerden J, Mahlachana N, Vermeulen J, Davidson A, Frazier AL, Donald K, Kruger M. Favorable Outcomes for Children with Biopsy Proven Malignant Extracranial Germ Cell Tumours 1990-2015: A First National Report by the South African Children's Cancer Study Group (SACCSG). *Pediatr Blood Cancer* 2019; **66**(Suppl. 4):e27989: S306.
152. Hendricks M, Cois A, Geel J, du Plessis J, Bassingthwaighte M, Naidu G, van Zyl A, Van Heerden J, Uys R, Buchner A, Omar F, Mahlachana N, Thomas K, Vermeulen J, Davidson A, Frazier AL, Donald K, Kruger M. Favourable Outcomes in Children and Adolescents with Sex Cord Stromal Tumours (1990-2015): A First Report by the South African Children's Cancer Study Group. *Pediatr Blood Cancer* 2019; **66**(Suppl. 4):e27989: S354
153. Kruger M, Van Elsland S, Wainwright R, Davidson A, Schoeman J, Stones D, Naidu G, Geel J, Van Zyl A, Afungchwi GM, Kouya F, Njodzeka B, Lecuona K, Hesselting P. Outcome Comparison of 2 Retinoblastoma Treatment Protocols for Developing Countries as per SIOP-PODC Recommendations. *Pediatr Blood Cancer* 2019; **66**(Suppl. 4):e27989: S383.
154. Schoeman J, Kellerman I, Ladas EJ, Rogers PC, Aryal S, Kruger M. The Prevalence of Household Food Insecurity Affecting Children Diagnosed with Cancer in Two Paediatric Oncology Units in South Africa. *Pediatr Blood Cancer* 2019; **66**(Suppl. 4):e27989: S540.
155. Hendricks M, Cois A, du Plessis J, Geel J, Bassingthwaighte M, Naidu G, Biance R, Buchner A, Omar F, Thomas K, Uys R, van Zyl A, Van Heerden J, Mahlachana N, Vermeulen J, Davidson A, Frazier AL, Donald K, Kruger M. Favourable Outcomes for South African Children and Adolescents with Mature and Immature Teratomas (1990 -2015): First Report by the South African Children Cancer Study Group. *Pediatr Blood Cancer* 2019; **66**(Suppl. 4):e27989: S598.
156. Njodzeka B, Afungchwi GM, Kinang P, Wharin P, Kouya F, Madimba C, Hesselting PB. HIV prevalence and disease outcome among patients with childhood cancer in Mbingo Banzo and Mutengene Baptist Hospitals, Cameroon. *Pediatr Blood Cancer* 2019; **66**(Suppl. 4): PODC02 SIOP19-0538, S112.
157. Kouya FN, Hesselting P, Wharin P, Nana P, Mbah G, Njamshi V. Improving access to care for children with cancer in rural Cameroon. *Pediatr Blood Cancer* 2019; **66**(Suppl. 4): V145 SIOP19-0874, S235.
158. Israels T, Renner L, Paintsil V, Hesselting P, Afungchwi GM, Weijers J, Njuguna F, Kantwela L, Chitsike I, Dhagaluka, G. Moluneux E, Kouya F. The SIOP Africa PODC - Collaborative Wilms Tumour Project S372 of S709. *Pediatr Blood Cancer* 2019; **66**(Suppl. 4): V431 SIOP19-015, S371

**Chapters in Books**

159. BOVIJN L, SOLOMONS RS, MARAIS S. Neurological TB in HIV. In: Sereti I, Bisson GP, Meintjes G (eds.) *HIV and Tuberculosis*, Springer, Cham, Switzerland, 2019: 295-334.
160. LAWRENSON J. Pathogenesis: from acute rheumatic fever to rheumatic heart disease in ESC *Cardiomed* (3 edn) (The ESC Textbook of Cardiovascular Medicine). Edited by A. John Camm,

Thomas F. Lüscher, Gerald Maurer, and Patrick W. Serruys. Oxford University Press (Continued online updating, 28 November 2019) DOI: 10.1093/med/9780198784906.003.0280\_update\_001



**FAMILY CENTRE for RESEARCH with UBUNTU**

**Departmental Report**

**Director:  
Prof Mark Cotton**

In 2019, FAMCRU underwent an official name change. Previously known as KID-CRU (Children's' Infectious Disease Clinical Research Unit), the establishment of the Family Centre for Research with Ubuntu (FAM-CRU) was approved by the Senate of the Stellenbosch University on 8 March 2019.

FAMCRU conducted 36 clinical trials and research studies in 2019, three quarters of which were in paediatric participants. These studies are conducted within the NIH funded IMPAACT (International Maternal Pediatric Adolescent AIDS Clinical Trials Group) and ACTG (AIDS Clinical Trials Group) networks, the European PENTA-ID ( Paediatric European Network for Treatment of AIDS – Infectious Diseases) network, pharmaceutical funded trials and investigator driven trials. We screened 561 potential participants and enrolled 175. There were 5652 clinic visits comprising 4484 scheduled visits and 1168 unscheduled during 2019. Additions to the staff complement 1 pharmacist.

### 1. Resource sharing and Collaboration

Dr Barbara Laughton conducts the following neurodevelopment studies:

- 1.1 The Association of Perinatal HIV infection and Hearing Loss in Children of Cape Town, South Africa.  
Funding: R01DC015984, NIH  
Collaborators: P Torre (PI) San Diego State University, Tj Yao, Harvard University, Andre van Der Kouwe Massachusetts General Hospital, Ernesta Meintjes UCT, Marcin Jankiewicz UCT.
- 1.2 Neuroimaging and gut microbiome markers of development in HIV-exposed uninfected infants.  
Funding: R01HD093578, NIH  
Collaborators: MJ Holmes (UCT), M Kaba (UCT), A van der Kouwe (MGH), F Little (UCT)
- 1.3 Neonatal Imaging as a marker of neurodevelopment and predictor of cognitive Performance in infants exposed to HIV and ART in utero and perinatally.  
Funding: R01 HD085813, NIH  
Collaborators: A van der Kouwe (MGH), E Meintjes (UCT), S Jacobson (Wayne State University), J Jacobson (Wayne State University), F Little (UCT)

FAM-CRU, in cooperation with the Stellenbosch University African Cancer Institute (ACI) share resources to support the AIDS Malignancy Consortium (AMC) trials unit at Stellenbosch University, implementing antiretroviral therapy and cancer treatment trials enrolling HIV infected cancer patients

FAMCRU Worcester continues to engage with the paediatric and obstetric departments of Worcester Hospital and seeks to strengthen this relationship with future trials.

### 2. Achievements and highlights

#### 2.1 Appointments

- 2.1.1 Marije van Schalkwyk – voting member of WHISC (Women's Health Inter-Network Scientific Committee)
- 2.1.2 Shaun Barnabas – voting member of the ACTG CURE Committee
- 2.1.3 Lynne Cornellisen – member of the South African Board of Trustees and Chair of the Global Programs Committee for Mothers 2 Mothers
- 2.1.4 Sonja Pieterse – Pharmacist of Record at FAMCRU
- 2.1.5 Mark Cotton – serves on the IMPAACT CURE Committee
- 2.1.6 Mark Cotton – president of the World Society for Paediatric infectious Diseases (WSPID)
- 2.1.7 Joan Coetzee is an ACTG study field representative:
- 2.1.8 Marie Theunissen – serves as a member of the International Community Advisory Board

2.1.9 Steve Innes – serves on the IMPAACT Complications Scientific Committee

## 2.2 Grants/awards

2.2.1 Marije Van Schalkwyk IMPAACT salary support as lead

2.2.2 Adrie Bekker: IMPAACT support as vice-chair

## 2.3 Educational achievements

2.3.1 Sonja Pieterse (pharmacist) has acquired her Masters in Clinical Epidemiology at the University of Stellenbosch in September 2019.

2.3.2 Dr Shaun Barnabas – PhD (UCT) 2019 - Title: Sexually transmitted infections, bacterial vaginosis and genital inflammation as risk factors of HIV acquisition in adolescent girls and young women in South Africa; Supervisors: Jo-Ann Passmore, Linda-Gail Bekker and Lindi Masson

## 3. Training and Teaching

### 3.1 Academic meetings

3.1.1 Quarterly SUN CTU meetings

3.1.2 Weekly SUN CTU academic presentations

3.1.3 Participation in the weekly Adult and Paediatric Infectious Diseases Meeting

3.1.4 Dr Marije Van Schalkwyk and Dr Samantha Fry attend the 2-monthly Tygerberg subdistrict HIV and TB meeting for community clinics and the quarterly Metro East clinical meeting for TB/HIV clinicians.

### 3.2 Courses / meetings attended

3.2.1 Samantha Fry attended the Research-for-Cure Academy hosted by the International AIDS Society.

3.2.2. Barbara Laughton presented at Academic Day of Excellence Nov 2019: Neurodevelopmental outcomes of children with HIV in different antiretroviral treatment strategies.

3.2.3 Barbara Laughton presented to the lunch time meeting of SU: Research into socio economic policy department. Neurodevelopmental research at FAMCRU

3.2.4 At the Academic Day of Excellence Nov 2019: presentation of Cognitive outcomes at 7 and 9 years in The Children with HIV Early Antiretroviral Therapy (CHER) trial. Kaylee S. van Wyhe, Barbara Laughton, Mark F. Cotton, Michael J. Boivin, Abdel Babiker, Diana Gibb, Avy Violari, Martin Kidd, and Kevin G. F. Thomas

### 3.3 Staff training

3.3.1 FAMCRU personnel completed a 3-day HIV and HIV Counselling and Testing short course presented by the Stellenbosch University

3.3.2 All clinical staff attended an in-house resuscitation-training course to upskill their knowledge during June – July 2019.

3.3.3 Sonja Pieterse, Pharmacist, now pharmacist of record, completed GCP refresher and HSP training.

### 3.4 Undergraduate teaching

3.4.1 Shaun Barnabas lectured in the undergraduate paediatric infectious diseases teaching block

3.4.2 Shaun Barnabas and Samantha Fry assist with middle rotation and student intern paediatric clinical examinations.

### 3.5 Postgraduate teaching/supervision

3.5.1 Shaun Barnabas supervised Sonja Pieterse who completed her Masters in Clinical Epidemiology at the University of Stellenbosch.

3.5.2 Amy Slogrove mentors and supervisors paediatric registrars in the completion of the MMED dissertations.

### 3.6 International Students

FAMCRU and HOPE hosted 8 international elective students from Australia, the UK and the USA during Jan – April 2019.

### 3.7 Mentored Investigators and staff

3.7.1 Adrie Bekker mentors Marisa Groenewald in publishing study outcomes and will co-supervise Marije Van Schalkwyk's PhD (Vice Chair, P1106):

3.7.2 Marije Van Schalkwyk is mentored by Profs Eric Decloedt, Adrie Bekker and Gerhard Theron in study activities and her PhD.

3.7.3 Marije Van Schalkwyk mentors Lynne Cornelissen in preparing new ACTG studies for implementation, preparing source documentation and planning visit schedules.

3.7.4 Mark Cotton mentors Shaun Barnabas and Samantha Fry for leadership roles within FAMCRU and IMPAACT, Marije Van Schalkwyk for site leadership for ACTG activities

3.7.5 Steve Innes provides mentorship as primary supervisor to Penny Rose and Claire Davies for their doctoral research.

## 4. Conferences attended

*Please indicate your position at the conference as indicated below*

<b>Date 2019</b>	<b>Conference/Workshop</b>	<b>Attended by</b>
11 February 2019	TB clinicians course	M van Schalkwyk
25 February 2019	Novel Clinical Trial Methodologies 2019 Workshop	M van Schalkwyk
4-7 March 2019	Annual Conference on Retroviruses and Opportunistic Infections (CROI)	M van Schalkwyk, S Barnabas, S Innes
8 March 2019	Annual Aids Clinical Trials Group (ACTG) Scientific Retreat Meeting	M van Schalkwyk, S Barnabas
10-12 April 2019	AMC network spring conference	L Cornelissen
14-16 May 2019	20 <sup>th</sup> International Workshop on Clinical Pharmacology of HIV, Hepatitis and other Antiviral Drugs	M Van Schalkwyk (presenter)
29 May 0 1 June 2019	PENTA-ID Meeting	M Cotton (speaker)
3 – 4 June 2019	CIPHER cohort collaboration meeting	A Bekker
5 – 7 June 2019	WHO ARV guideline meeting	M Cotton
13-14 June 2019	WHO PK in Pregnancy Workshop	M Van Schalkwk, A Bekker
June 2019	Annual IMPAACT Network Meeting	A Janse van Rensburg, Sonja Pieterse, M Cotton,



		S Barnabas, G Fourie
17-21 June 2018	Annual ACTG Network Meeting	M Cotton, M van Schalkwyk, S Barnabas, J Coetzee
19 July 2019	Brief Behavior Change Counselling Intervention Course	M Van Schalkwyk
19 – 20 July 2019	11 <sup>th</sup> International Workshop on HIV Paediatrics	S Barnabas (poster presentation), A Bekker (oral presentation) B Laughton
21 – 24 July 2019	International AIDS Society Conference (HEU Workshop)	A Slogrove (convener), B Laughton
22 – 26 July 2019	Comprehensive Statistics Course Using STATA	M Van Schalkwyk
21 August 2019	Faculty of Medicine Annual Academic Day	M Van Schalkwyk (presenter)
4 – 8 November 2019	World Society for Paediatric infectious Diseases (WSPID)	M Cotton (president)
November 2019	Paediatric Academic Day of Excellence	B Laughton (presenter) K Van Wyhe (presenter)
20 – 22 November 2019	EPIICAL General Assembly (PENTA) – hosted by FAMCRU	S Fry, S Barnabas, M Cotton, A Janse van Rensburg, B Laughton, N Pipers, S Kruger

## 5. Publications

1. Violari A, **Cotton MF**, Kuhn L, Schramm DB, Paximadis M, Loubser S, et al. A child with perinatal HIV infection and long-term sustained virological control following antiretroviral treatment cessation. *Nat Commun.* 2019;10(1):412.
2. Veldsman KA, Janse van Rensburg A, Isaacs S, Naidoo S, Laughton B, Lombard C, et al. HIV-1 DNA decay is faster in children who initiate ART shortly after birth than later. *J Int AIDS Soc.* 2019; 22(8).
3. van Elsland SL, Peters RPH, Grobbelaar C, Ketelo P, Kok MO, Cotton MF, et al. Disclosure of human immunodeficiency virus status to children in South Africa: A comprehensive analysis. *South Afr J HIV Med.* 2019; 20(1):884.
4. Springer PE, Slogrove AL, Kidd M, Kalk E, Bettinger JA, Esser MM, et al. Neurodevelopmental and behavioural outcomes of HIV-exposed uninfected and HIV-unexposed children at 2-3 years of age in Cape Town, South Africa. *AIDS Care.* 2019:1-9.
5. Slogrove AL, Powis KM, Cotton MF. Human Immunodeficiency Virus-exposed Uninfected Infants: Surviving and Thriving or Overlooked by Success? *Clin Infect Dis.* 2019;68(12):2156-8.
6. Simani OE, Izu A, Nunes MC, Violari A, Cotton MF, Van Niekerk N, et al. Effect of HIV exposure and timing of antiretroviral therapy initiation on immune memory responses to diphtheria, tetanus, whole cell pertussis and hepatitis B vaccines. *Expert Rev Vaccines.* 2019;18(1):95-104.
7. Rabie H, Cotton M, Dramowski A. Essential metrics for high-quality reporting of neonatal sepsis research in low-resource settings. *Lancet Infect Dis.* 2019;19(11):1155-7.
8. Payne H, Chain G, Adams S, Hunter P, Luckhurst N, Gilmour K, et al. Naive B Cell Output in HIV-Infected and HIV-Uninfected Children. *AIDS Res Hum Retroviruses.* 2019;35(1):33-9.

9. Patten G, Schomaker M, Davies MA, Rabie H, van Zyl G, Technau K, et al. What Should We Do When HIV-positive Children Fail First-line Combination Antiretroviral Therapy? A Comparison of 4 ART Management Strategies. *Pediatr Infect Dis J*. 2019;38(4):400-5.
10. Meyers T, Samson P, Acosta EP, Moye J, Townley E, Bradford S, et al. Pharmacokinetics and safety of a raltegravir-containing regimen in HIV-infected children aged 2-12 years on rifampicin for tuberculosis. *AIDS*. 2019;33(14):2197-203.
11. Iyun V, Technau KG, Eley B, Rabie H, Boulle A, Fatti G, et al. Earlier Antiretroviral Therapy Initiation and Decreasing Mortality Among HIV-infected Infants Initiating Antiretroviral Therapy Within 3 Months of Age in South Africa, 2006-2017. *Pediatr Infect Dis J*. 2019.
12. Honeth I, Laughton B, Springer PE, Cotton MF, Pretorius C. Diagnostic accuracy of the Molteno Adapted Scale for developmental delay in South African toddlers. *Paediatrics and international child health*. 2019;39(2):132-8.
13. Frigati LJ, Jao J, Mahtab S, Asafu Agyei NA, Cotton MF, Myer L, et al. Insulin Resistance in South African Youth Living with Perinatally Acquired HIV Receiving Antiretroviral Therapy. *AIDS Res Hum Retroviruses*. 2019;35(1):56-62.
14. Frigati LJ, Brown K, Mahtab S, Githinji L, Gray D, Zuhlke L, et al. Multisystem impairment in South African adolescents with Perinatally acquired HIV on antiretroviral therapy (ART). *J Int AIDS Soc*. 2019; 22(8)
15. Frigati L, Mahtab S, Nourse P, Ray P, Perrazzo S, Machededze T, et al. Prevalence of risk factors for chronic kidney disease in South African youth with perinatally acquired HIV. *Pediatr Nephrol*. 2019;34(2):313-8.
16. Cotton MF, Rabie H, Nemes E, Mujuru H, Bobat R, Njau B, et al. A prospective study of the immune reconstitution inflammatory syndrome (IRIS) in HIV-infected children from high prevalence countries. *PLoS One*. 2019;14(7)
17. Cotton MF, Rabie H. Is point-of-care early infant HIV diagnosis sustainable? *Lancet HIV*. 2019;6(6)
18. Cotton MF, Rabie H. What Will It Take to Implement Targeted HIV Testing at Birth? *Pediatrics*. 2019;143(6).
19. Cotton MF, Laughton B, Rabie H. Should efavirenz be used in children and, if so, how? *Lancet HIV*. 2019;6(4)
20. Meyers T, Samson P, Acostac EP, Moyed J, **Cotton MF**, et.al. Pharmacokinetics and safety of a raltegravir containing regimen in HIV-infected children aged 2–12 years on rifampicin for tuberculosis. *AIDS* 2019, 33:2197–2203
21. Fry, Samantha H-L, Cotton, Mark F, Barnabas, Shaun L. Tuberculosis and HIV—an update on the ‘cursed duet’ in children. *Frontiers in Pediatrics*. 2019; 7(159).
22. Laughton B, Naidoo S, Dobbels E, et al. Neurodevelopment at 11 months after starting antiretroviral therapy within 3 weeks of life. *South Afr J HIV Med* 2019;20:1008.

## 6. Community engagement

### 6.1 Adult CAB

- 6.1.1 Monthly meetings with training, knowledge sharing and study related discussion.
- 6.1.2 Quarterly events held in conjunction with national and international awareness days
- 6.1.3 Annual combined SUN CTU CAB training and workshop weekend with a gala event held in October 2019

## 6.2 Adolescent CAB

- 6.2.1 Monthly meetings which aims to nurture and inspire leadership amongst the adolescents as well as to identify and encourage growth and career goals to improve well-being
- 6.2.2 Mentorship of younger members by the older members of the group encourage dialogue and communication regarding educational and career opportunities
- 6.2.3 Regular community based activities to promote community engagement and welfare work
- 6.2.4 Quarterly educational and information sharing events that coincide with national and international awareness days.
- 6.2.5 Regular training sessions on research, selfheal and wellbeing.

## 6.3 Community outreach and communication

- 6.3.1 FAMCRU regularly provides feedback on results from studies to the adult and adolescent community advisory board.
- 6.3.2 FAMCRU held a successful community feedback day in November 2019 to share information regarding FAMCRU's current studies and study outcomes. Members of the CAB, clinical facilities' healthcare workers and managers, Stellenbosch University and Tygerberg management and representatives from the Department of Health were in attendance.

## 7. Infrastructure Development

FAMCRU has undergone minor improvements to the infrastructure during the reporting period, including painting and general repairs. The infection prevention and control systems were assessed and upgraded. Negative pressure extractor fans were repaired and replaced in all consulting rooms\_ Wi-Fi was installed to assist monitors with their work

## 8. International visitors

FAMCRU successfully hosted the annual international EPIICAL (Early treated Perinatally HIV Infected individuals: Improving Children's Actual Life) General Assembly (PENTA) on 20-22 November 2019.

# DESMOND TUTU TB CENTRE ANNUAL REPORT 2019



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## LETTER FROM THE DIRECTOR

Reflecting on the past year, we have much to be thankful for at the Desmond Tutu TB Centre. Our centre is truly a place where we care about our work, our local communities, and also for each other.

During 2019, several major milestones were achieved. We have had successful completion and close-out of a seminal HIV prevention trial, HPTN 071 (PopART), one of the largest HIV prevention trials ever conducted in history. In addition to the substantial clinical and scientific benefit to study communities and the global research community, one of the major successes was the appropriate and timely consultation and dissemination with all relevant local stakeholders, including local communities, government partners and implementing partners, before formal trial results were disseminated at international meetings. Capacity building and the retention of many highly skilled personnel after the completion of PopART was highly encouraging, as was the successful transition of key personnel to other research and implementing organizations.

The Centre was awarded the largest single direct research grant in the university's history from UNITAID, for the "BENEFIT-Kids" project, addressing key unmet needs in the treatment and prevention of drug-resistant tuberculosis in children. This 3-year project promises to transform access to much-needed treatment for children and significantly improve the knowledge base of treatment for children with drug-resistant tuberculosis and their families and communities.

Capacity building was a key highlight in 2019, with the promotion of Dr Rory Dunbar, Dr Graeme Hoddinott and Dr Florian Marx, to senior researcher positions, while Dr Anthony Garcia-Prats and Dr Peter Bock were promoted to Associate Professors.

Our community engagement platforms and our institutional Community Advisory Board (CAB) has grown from strength to strength, with meaningful consultation about the design, implementation and dissemination of our research becoming the standard.

The Centre graduated multiple postgraduate students and published more than fifty high-quality peer-reviewed publications, an indication of our ongoing scholarship, our extensive collaboration and our strong focus on knowledge dissemination.

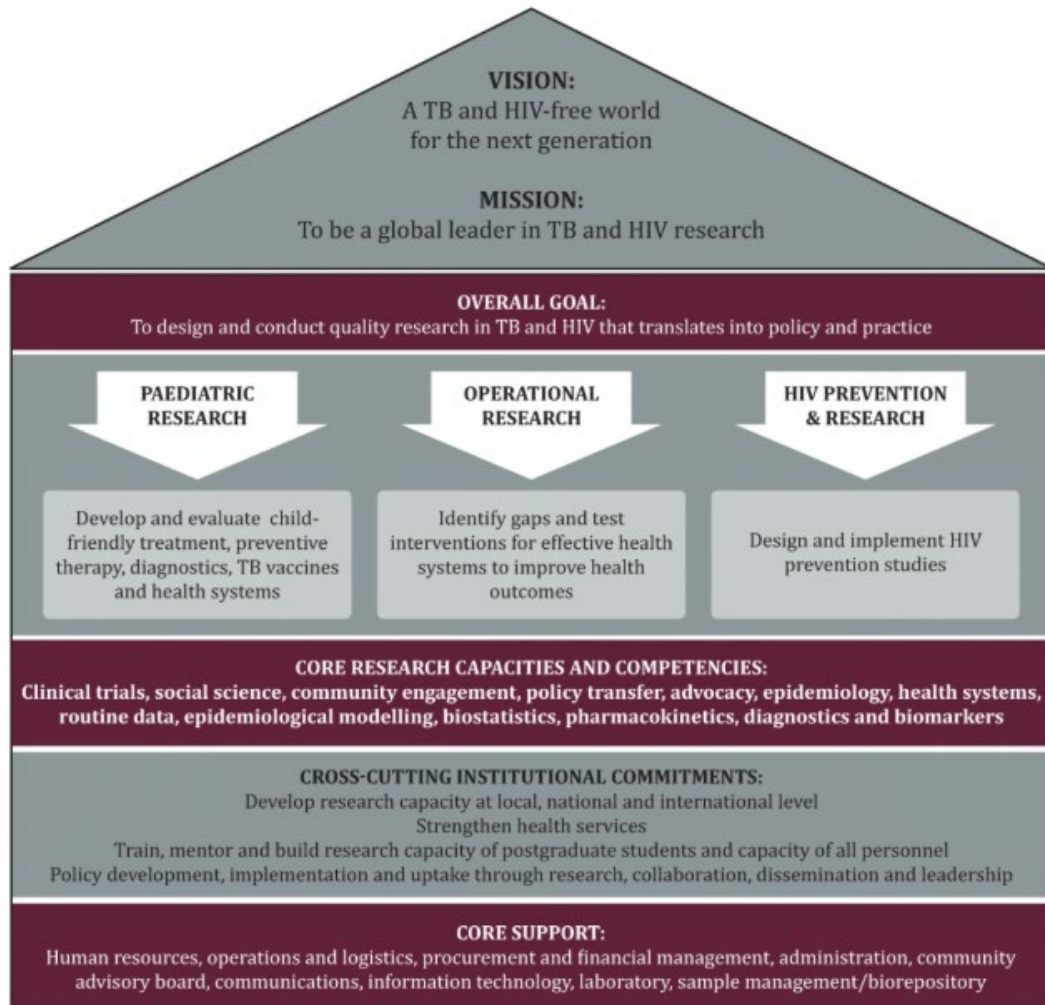
On a sad note, the Centre formally bid farewell to its founding director, Professor Nulda Beyers, and Professor Robert Gie, who both retired from their wonderfully productive academic careers to pursue new challenges and passions. We are thankful for their inspiring and selfless leadership, their mentorship and for the living legacy they have left behind. What an honour and privilege to have been mentored and trained by such amazing individuals.

We look forward to a productive and impactful 2020. We have much work to do and many challenges and opportunities to meet. We believe that our strong core values, our unique human capital and our equitable collaborations will carry us through this year and into the future.



Professor Anneke C. Hesseling  
Director: Desmond Tutu TB Centre  
Distinguished Professor in Paediatrics and Child Health

## DTTC STRATEGY HOUSE



## GLOSSARY OF TERMINOLOGY

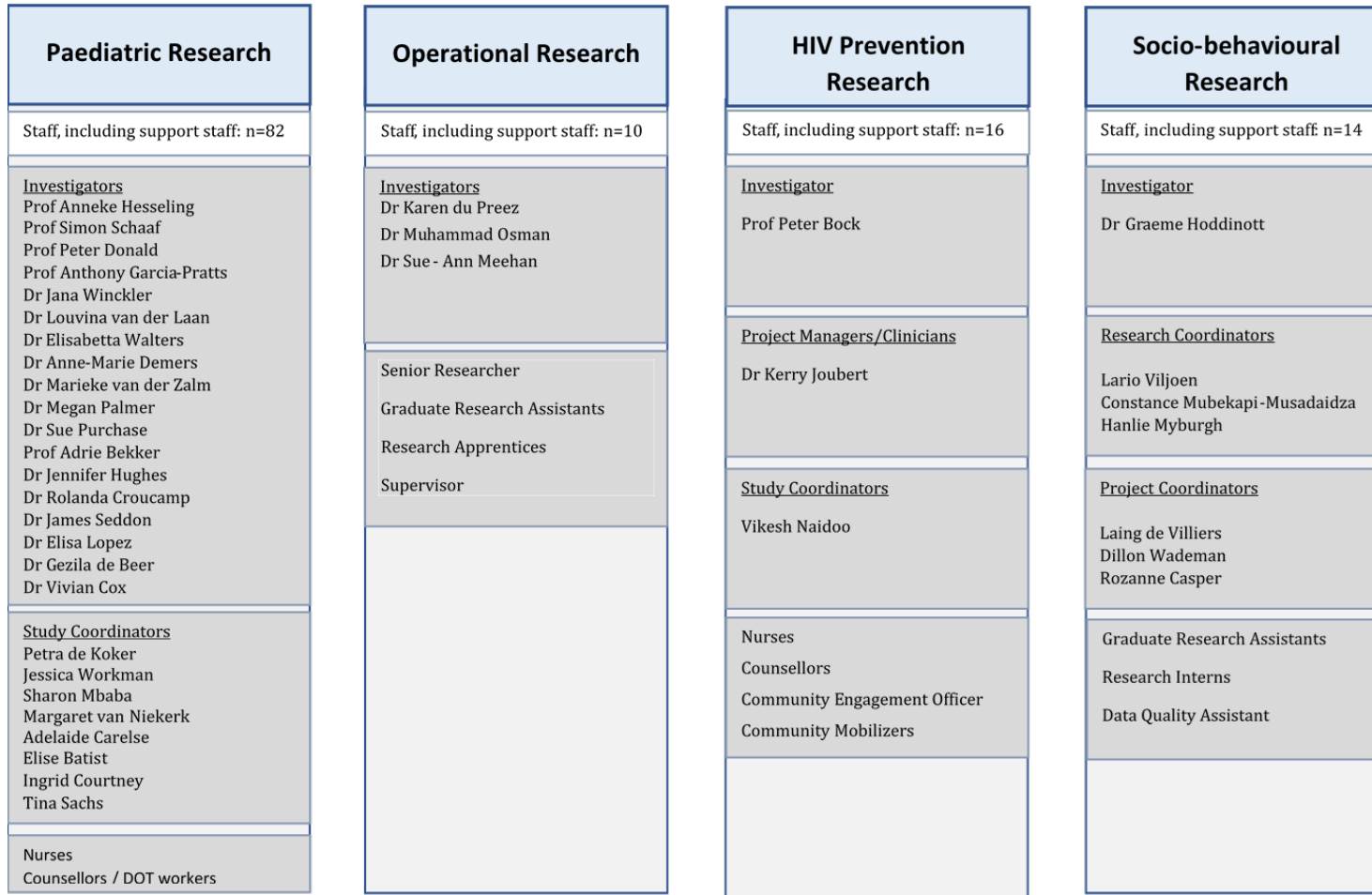
ACTG	AIDS Clinical Trials Group
AIDS	Acquired Immunodeficiency Syndrome
ART/ARV	Antiretroviral Therapy / Antiretroviral
BCH	Brooklyn Chest Hospital
BMC	BioMed Central
BMRC	British Medical Research Council
CAB	Community Advisory Board
CD4	Cluster of Differentiation 4
CDC	US Centers for Disease Control and Prevention
CIDER	Centre for Infectious Disease Epidemiology and Research
CTU	Clinical Trials Unit
CWG	Community Working Group
CXR	Chest X-ray
DAIDS	Division of AIDS, NIAID
DFID	Department for International Development
DoH	South African National Department of Health
DR-TB	Drug-Resistant Tuberculosis
DS-TB	Drug-Susceptible Tuberculosis/Drug-Sensitive Tuberculosis
DTTC	Desmond Tutu TB Centre
EDCTP	The European & Developing Countries Clinical Trials Partnership
FAMCRU	Family Clinical Research Unit
FMHS	Faculty of Medicines and Health Science
HIV	Human Immunodeficiency Virus
HPTN	HIV Prevention Trials Network
HREC	Health Research Ethics Committee
ICAB	IMPAACT Community Advisory Board
INH	Isoniazid
ILTFU	Initial lost to follow-up
IMPAACT	International Maternal Paediatric Adolescent AIDS Clinical Trials Group
IRD	Interactive Research and development
ISMMS	The Icahn School of Medicine at Mount Sinai
ITBSL	International Tuberculosis Specialty Laboratory
LTBI	Latent TB infection
MA	Master of Arts
MDR-TB	Multidrug-Resistant Tuberculosis
MPhil	Master of Philosophy
MRC	Medical Research Council
MRC CTU	Medical Research Council Clinical Trials Unit
MS	Mass Spectrometry
MSF	Médecins sans Frontières
NIAID	National Institute of Allergy and Infectious Diseases
NIH	National Institutes of Health
ORAP	Operational Research Assistance Project
PEPFAR	President's Emergency Plan for AIDS Relief
PI	Principal Investigator
PK	Pharmacokinetics

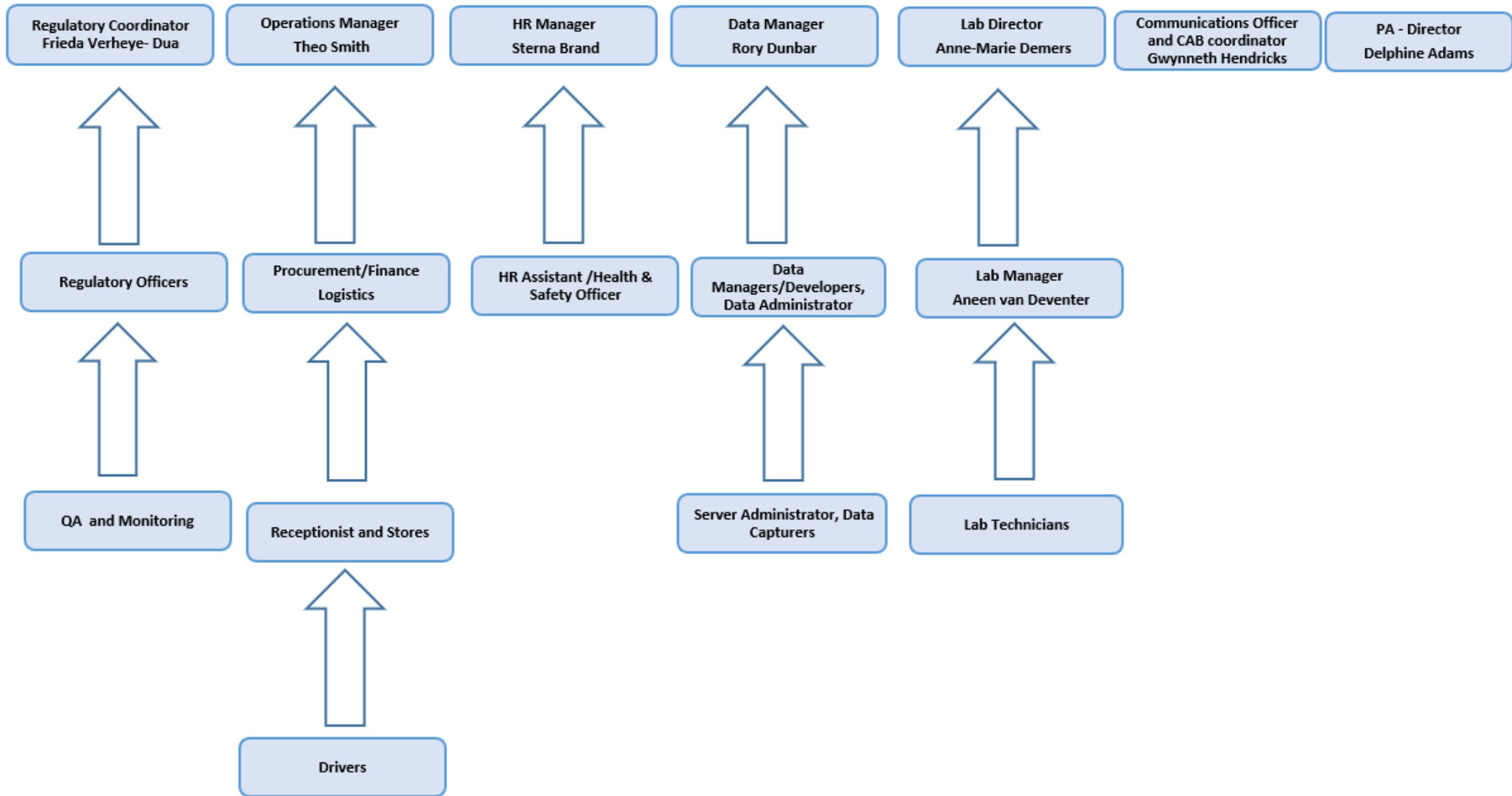


RIF	Rifampicin
RGMO	Research grants management office
SACEMA	South African Centre for Epidemiological Modelling & Analysis
SC	Steering Committee
SU	Stellenbosch University
TBTC	TB Trials Consortium
TPT	TB preventative therapy
WHO	World Health Organisation

## ORGANOGRAM

**Director: AC Hesseling**





Total staff component = 122

## **Desmond Tutu TB Centre: Highlights for 2019**

### **Key Achievements**

- The DTTC received a three-year multi-country grant from UNITAID for the “BENEFIT Kids Project”, focusing on better treatment for children affected by MDR-TB. This grant is the largest single award ever received by Stellenbosch University.
- The DTTC led the submission of the competitive renewal grant application for the NIH-funded clinical trial networks, for the Stellenbosch Clinical Trials Unit (CTU), including the DTTC, FAMCRU and TASK.
- On World TB day, the Desmond Tutu TB Centre hosted a series of presentations with the theme “TB through the lens of time” which included presentations by Peter Donald, Sue Purchase and a performance by the DTTC Community Advisory Board (CAB). The DTTC launched the Robert Gie Ikamva Wing at Tygerberg Campus.
- Findings of the HPTN 071 (PopART) trial were disseminated at the Conference on Retroviruses and Opportunistic Infections (CROI) in Seattle. March 2019.
- The First International Post-Tuberculosis Symposium & Working Meeting was held at Stellenbosch University from 22-23 July 2019. Several DTTC staff were involved with hosting and presenting at the symposium.
- Dr Muhammad Osman received the 2019 HD Brede Award for Postgraduate Research in Infectious Disease in the Clinical research category at the Faculty of Medicine and Health Sciences annual academic day.
- Dr Liz Walters was been awarded a clinical fellowship position (paediatric clinical immunology) at the Royal Victoria Infirmary in Newcastle-upon-Tyne.
- The new DTTC website was launched
- Dr Graeme Hoddinott, Dr Florian Marx and Dr Rory Dunbar were promoted to the position of senior researcher.
- Dr Peter Bock and Dr Anthony Garcia-Prats were promoted to the position of associate professor.
- DTTC staff presented at several key local and international conferences, including the 50<sup>th</sup> Union World Conference on Lung Health in Hyderabad, India and the AIDS Impact Conference in London.
- DTTC staff successfully published more than 50 manuscripts during 2019.

### **Postgraduate students**

- Anneke Hesselning was awarded four new PhD scholarships through her SARcHi chair.
- Gerald Maarman received an Y2 NRF (National Research Foundation) rating and was featured on the Stellenbosch University Website.
- Graeme Hoddinott was awarded a PhD in Psychology from the University of KwaZulu Natal.
- Eight students from the DTTC were newly registered for PhD degrees.
- Dionne Jivan and Kyla Meyerson, from Sociobehavioural Sciences, were accepted into the highly competitive Clinical Psychology Masters programmes at Stellenbosch University and the University of Johannesburg respectively.

### **Dissemination and social events**

- The DTTC Annual Dissemination meeting was held at Hazendal on the 15<sup>th</sup> of November with 180 attendees.
- DTTC staff celebrated Heritage Day with a lunch event on the 27<sup>th</sup> of September.
- DTTC staff participated in the annual Stellenbosch University Sports Day on the 1<sup>st</sup> of November.

## RESEARCH UPDATES

### Research Focus Area One: Paediatric Tuberculosis

The DTTC continues to build upon its world class reputation of clinical research in paediatric tuberculosis (TB). The DTTC is a global leader in therapeutics for the prevention and treatment of TB in children, especially in the context of drug-resistant TB.

The DTTC hosts a South African National Research Foundation SARChI Chair in Paediatric Tuberculosis, Anneke Hesseling, who is Centre director and Distinguished Professor in Paediatrics and Child Health, at Stellenbosch University. Key focus areas for paediatric research include 1) therapeutics for Drug Susceptible (DS) and Drug Resistant TB (DR-TB) in children and in pregnant women, 2) trials on TB preventive therapy for DS and DR-TB in children, 3) lung health, diagnostics and biomarkers in children, and 4) epidemiological and implementation research.

Major areas of interest specifically include the evaluation of novel therapeutic strategies for Multidrug resistant TB (MDR-TB) in children, where the Centre is a global leader in its field and is generating seminal data on an ongoing basis. The DTTC has again expanded its state-of-the-art paediatric pharmacokinetics (PK) clinical research unit at Brooklyn Chest Hospital (BCH) and has established three new clinical research sites.

Expanding national collaborations have included Shandukani (Dr Lee Fairlie, WHRI), and PHRU (Professor Neil Martinson, Dr Avy Violari) and new international collaboration have included the Uppsala Pharmacometric modelling group and Professor Tony Hu, Arizona State University and Professor Bob Husson (Boston Children's Hospital). The DTTC is also increasingly collaborating with other African research groups including in Uganda, Zambia, Mozambique and Namibia. During 2019, Dr Karen du Preez and Dr Muhammad Osman joined a national South African epidemiological TB programme review with the World Health Organization (WHO), strengthening our existing collaboration to support paediatric TB at both national and international level.

The DTTC paediatric group is a well-performing clinic site for the DAIDS-funded International Maternal, Paediatric, Adolescent AIDS Clinical Trials (IMPAACT) where it is currently conducting five IMPAACT TB trials and also for the US Centres for Disease Control (CDC) TB Clinical Trials Consortium (TBTC), where it leads Study 35, a TB prevention trial of short course rifapentine and isoniazid, in children. This seminal trial opened in October 2019, with the DTTC being the only site, globally, to enrol in this study.

The paediatric TB research group at the DTTC has been exceptionally productive during 2019. They have graduated two MA degrees and two PhD students, with two new PhD students registered, one postdoctoral fellow from Spain (Dr Elisa Lopez), and a BMRC-funded (British Medical Research Council) research fellow from Imperial College London, Dr James Seddon (who has received an extraordinary appointment at the DTTC as Senior Researcher).

The group's research has resulted in more than 40 publications in international peer-reviewed journals (Appendix I), participation in several national and international TB treatment and prevention guideline meetings, including with the WHO, and with the South African National Department of Health (DoH).

The group has had three major international grants awarded, and several local grants.

The group has embarked on new collaborations with Imperial College London; Rutgers University; BJMC, Pune, India; and La Salle Medical Health Sciences Institute College of Medicine, De

La Salle University Medical Centre, the Philippines. The group has also developed new national partnerships in South Africa, and new collaborative partnerships in Africa (Uganda and Zambia).

The therapeutics group has been shaping the science and implementation of paediatric TB treatment trials through leadership in the National Institutes of Health (NIH) funded IMPAACT and the CDC TBTC trial consortia.

The DTTC paediatric group alone contributed 14 presentations to the 50<sup>th</sup> annual International Union against Tuberculosis and Long Disease conference in Hyderabad, India, in October 2019, with 7 oral presentations, including two late breaker session.

### **Crosscutting Projects: prevention and treatment of MDR-TB**

**BENEFIT Kids (Better Evidence and Formulations for Improved MDR-TB Treatment for Children)** (Project leads: Dr Anthony Garcia-Prats, Prof Anneke Hesselning) is a Unitaid-funded project which will run over a 3-year period (October 2019 – September 2022) with the aim of developing an evidence-based package of improved prevention and treatment tools to reduce paediatric MDR-TB morbidity and mortality. This evidence package will be made available for adoption and scale-up. BENEFIT Kids is a large project that is divided into three outputs with multiple partners' and stakeholders' involvement:

- Output 1 aims to provide improved evidence from existing data for better MDR-TB treatment for children through two systematic reviews of the MDR treatment literature in paediatrics and will feed into WHO guideline development.
- Output 2 consists of 5 clinical trials to deliver improved evidence for better MDR-TB prevention and treatment for children:
  - Trial 1 is called **“Delamanid Crush study”**, which is led by TASK and assesses the relative bioavailability in adults of Delamanid dispersed in water compared to whole tablet form. Delamanid is a key new drug used to optimise MDR treatment regimens and is more easily administered to children in a dispersed formulation. Understanding whether dispersing impacts on bioequivalence is important.
  - Trial 2 is the **“PERFORM study”** (Pharmacokinetics of LEVofloxacin FORmulations in children with MDR-TB exposure) and evaluates the pharmacokinetics and acceptability of 100 mg dispersible compared to 250 mg non-dispersible tablets of levofloxacin in children exposed to MDR TB. Levofloxacin is used in both MDR treatment regimens and as prevention for children exposed to MDR-TB and this study aims to look at how formulation may affect drug exposure (which impacts on safety and efficacy).
  - Trial 3 is called the **“CATALYST study”** (Clofazimine and moxifloxacin PK, safety and AccepTAbiLiTY for paediatric TB treatment), a phase I/II trial of the pharmacokinetics, safety, tolerability and acceptability of new formulations of clofazimine and moxifloxacin in children treated for rifampicin-resistant TB. These two study drugs are often included in MDR-TB treatment regimens and the trial aims to evaluate new child-friendly formulations. This is a multi-site study which will recruit at the DTTC Brooklyn Chest Hospital (BCH) site as well as in India (partner BJMC and JHU, PI: Dr Aarti Kinikar) and the Philippines (De la Salle Medical Centre, PI: Dr Mel Frias) University.
  - Trial 4 is **“TB CHAMP”** (please see Therapeutic trials: prevention of MDR-TB below)
  - Trial 5 is the **“PETITE study”** (Pharmacokinetic and safeTy of the 4-In-1 granules inneonaTEs) which will be led by neonatologist Adrie Bekker. This is an open label, single arm, two-stage trial to evaluate the single and multi-dose pharmacokinetics and safety of the abacavir/lamivudine/ lopinavir/ritonavir (30/15/40/10mg) (4-in-1) fixed-dose granule formulation in HIV-exposed neonates.

- Output 3 aims to produce targeted formulation development and market shaping to improve availability of child-friendly formulations of key 2nd-line TB drugs and will be undertaken in partnership with TB Alliance.

The large grant for this ambitious project was awarded by Unitaid to the DTTC, Stellenbosch University in Quarter 4 of 2019 and the project was launched at the 2019 Union Conference in India, October 2019. All clinical trials will commence recruitment in the second half of 2020.

**Therapeutic trials: prevention of drug-susceptible TB**

**TBTC Study 35:** (PI Anneke Hesselning) This multisite study funded by the United States Centre for disease control (CDC) and the CDC Foundation, aims to evaluate the pharmacokinetics (PK), safety and tolerability of rifapentine given in a novel, water-dispersible fixed dosed combination with Isoniazid (INH) which is developed and supplied by Sanofi. This FDC of Rifapentine and Isoniazid which has been shown to be efficacious in preventing progression from latent TB infection (LTBI) to disease, will be given once-weekly, for 12 weeks, in HIV-infected and HIV-uninfected children between the ages of 0-12 years in whom treatment for LTBI is indicated. Current LTBI treatment is daily INH for 6 months, adherence to this regimen is poor as it is not a child friendly regime or formulation. It is important to treat LTBI to prevent progression to disseminated or severe forms of TB in young children, therefore a regimen that improves adherence to LTBI treatment, will potentially decrease TB related childhood morbidity and mortality. This study hopes to inform dosing (especially in children under two years), provide more safety data and assess acceptability of this novel FDC of Rifapentine and Isoniazid.

**Therapeutic trials: treatment of drug-susceptible TB**

**SHINE:** (Site PI: Anneke Hesselning). The SHINE trial (Shorter treatment for minimal TB in children) is a multi-site open-label trial that aims to evaluate the efficacy and safety of 4-month vs. the standard 6-month TB treatment regimen for non-severe DS-TB in children. The trial is sponsored by the Medical Research Council Clinical Trials Unit (MRC CTU) at University College London. Recruitment was completed in July 2018, with 1204 children enrolled in South Africa, Zambia, Uganda and India. The DTTC enrolled a total of 315 children. The new WHO-endorsed dispersible fixed-dose combination of first-line TB drugs was used in this trial: nested pharmacokinetics sampling was completed in 31 children, and the DTTC led the qualitative work around the acceptability and palatability of this formulation. The DTTC is also coordinating the process for central expert review of the chest X-rays taken on the SHINE trial – approximately 1200 CXR images have been reviewed thus far and will inform the final adjudication of certainty of TB diagnosis and classification of trial outcomes. The results of the SHINE trial, which are expected in Quarter 3 of 2020, could pave the way for future trials looking at TB treatment shortening in children.

**Project P1026s:** (PI Jenny Hughes). IMPAACT 1026s is a phase IV observational PK study that started in November 2017 and closed to recruitment in December 2019. The primary aim of the trial is to describe PK of selected ARV drugs, TB drugs and contraceptives currently used in the clinical care of HIV-infected and HIV-uninfected women with TB or drug-resistant TB. Overall, 13 women have been enrolled on the drug-resistant TB arm and 8 of these women were enrolled at the DTTC; planning for the analysis of these data is underway. This study will provide critically needed information on the PK in pregnant women of medications used to treat MDR-TB. A follow-up study, IMPAACT 2026, which also aims to describe the PK properties of ARV, TB, and hormonal contraceptive drugs administered during pregnancy and postpartum (in blood and breastmilk), is in preparation and will open in 2020.

**IMPAACT P1101:** (Site PI: Anneke Hesselning) this IMPAACT-funded multisite network phase I/II trial evaluated the PK and safety of Raltegravir, a new integrase inhibitor, in combination with first-line TB treatment, including rifampicin. Children were HIV-infected, on TB treatment, but not currently on ARVs. This patient group was difficult to enrol in Cape Town, given good HIV prevention and treatment services in children, however enrolment was successfully completed and the study has officially been closed. Data analysis for this study has nearly been completed and publications are underway.

**Site of Disease PK (SOD) STUDY:** Pharmacokinetics of antituberculosis drugs at the site of disease in children with complicated intrathoracic tuberculosis (PI: Anneke Hesselning, Elisa Lopez-Varela, Pierre Goussard). This was a uniquely innovative proof of concept paediatric study investigating the pharmacokinetic of anti-tuberculosis drugs at the site of disease in children with complicated pulmonary tuberculosis, compared to plasma exposures. A total of 15 cases were included and the data has been analysed and will be published shortly, providing the first estimates globally on TB drug penetration into intrathoracic lesions in children

**OptiRif Kids:** Optimising rifampicin exposure in children (PI: Anneke Hesselning) this phase I/II open label multi-cohort dose escalation study aimed to evaluate the pharmacokinetics and safety of increased doses of rifampicin in HIV-negative children with tuberculosis. This trial, funded by the TB Alliance, was an investigator-initiated trial conducted at the DTTC and at Shandukani trial site in Johannesburg. Three dosing cohorts were enrolled, starting with the standard dose of 15-20 mg/kg of rifampicin, and using population PK to model optimal doses. Ultimately, adult PK targets for rifampicin (using a high dose of 35 mg/kg per day in adults) in children, requiring 60 mg/kg daily rifampicin in children. There were no significant safety concerns. This study for the first time determined the dose requirements for rifampicin, a key sterilizing TB drug, to achieve new higher rifampicin adult exposures, and paves the way for the evaluation of high-dose rifampicin in new TB treatment regimens.

#### **Therapeutic trials: prevention of MDR-TB**

**TB-CHAMP (MDR-TB preventive therapy trial):** (DTTC PIs: Anneke Hesselning, Simon Schaaf, James Seddon) 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. The target sample size is 1009 children 0-5 years of age. The main trial opened to accrual in Q4 2017 at the DTTC. As of 31 January 2019, 647 children had been screened and 505 enrolled in the study. Interim analysis is planned for when these 500 contacts have been followed up for at least 24 weeks. The trial, led by the DTTC, was previously funded by the BMRC/Wellcome Trust/DFID, and has recently received funding until September 2022 from UNITAID as part of the BENEFIT KIDS grant. The trial includes 3 South African sites, including Shandukani (WHRI, Johannesburg, Dr Lee Fairlie), PHRU Matlosana, Klerksdorp (Prof. Neil Martinson) and the DTTC.

#### **Therapeutic trials: treatment of MDR-TB**

**IMPAACT 2005:** (PI Anneke Hesselning). IMPAACT 2005 is an NIH-funded phase I/II open-label, single arm study to evaluate the pharmacokinetics (PK), safety and tolerability of delamanid in combination with an optimized background regimen for MDR in HIV-infected and HIV-uninfected children with MDR-TB. Delamanid is a new drug used for the treatment of MDR TB in children and adults. Optimizing its use in children is crucial as its inclusion in an MDR treatment regimen allows for the exclusion of painful injectable drugs (and their unacceptable side effect of permanent hearing loss, among others) and shortening of treatment duration. 48 participants, aged 0-17 years, will be enrolled into four age-based cohorts over a period of 72 weeks and will receive delamanid for 24 weeks. PK and safety data will be collected. The trial is expected to open to accrual in Quarter 2 of 2020.

**Otsuka 232/233:** (PI: Anthony Garcia-Prats, Louvina van der Laan): Along with a site in the Philippines, the DTTC is implementing this industry sponsor-funded (Otsuka, Japan) Phase 1 (232) and Phase 2 (233) trials which seek to characterize the pharmacokinetics and safety of delamanid in children with MDR-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 trials, all age groups (0 to 17 years) have fully enrolled for both studies. Data from these groups informed WHO guidance in 2016 for the use of delamanid in children 6-17 years of age with MDR-TB, and in 2018 for Group 3 (ages 3-6 years). The 232 study is now closed with



final data analysis ongoing, and the long-term follow-up of Group 4 (0 to 2 years) in study 233 was completed Jan 2020, with the final analysis now ongoing.

**MDR PK 2:** (PI: Anthony Garcia-Prats) MDR-PK2 is an NIH-funded observational study that aims to evaluate the pharmacokinetics, safety, tolerability and acceptability of model-optimized doses of key drugs used in MDR TB treatment regimens: levofloxacin, moxifloxacin and linezolid. The study enrolled 89 children and closed to accrual in 2018. Seven children remain in clinical follow-up and are expected to complete the study within the next two months. Data from this study has already informed updated WHO paediatric dosing guidelines and has generated several manuscripts and Dr Garcia-Prats' PhD 2019; further analyses are ongoing.

**IMPAACT P1108:** (PIs Anneke Hesselting, Simon Schaaf). IMPAACT 1108 is an NIH funded phase I/II trial to determine the optimal and safe dose of bedaquiline in HIV-infected and HIV-uninfected children with MDR TB. P 1108 is a multi-centre trial which enrolls children in age-based cohorts in an age de-escalation strategy and is being undertaken in South Africa, India and Haiti. The target sample size is 75 and 8 of the 15 children enrolled thus far were enrolled at the DTTC. Bedaquiline is a critically important treatment option for both adults and children as it allows for the use of shorter, injectable-sparing MDR TB treatment regimens. Data from P1108 has already informed WHO paediatric dosing guidelines and bedaquiline is now available in South Africa for children 6 years of age and older in the routine TB programme. Cohorts 2 and 3 (children < 6 years of age) will open in Quarter 1 2020.

### **Lung health, diagnostic and biomarker studies**

(PIs Elisabetta Walters, Marieke van der Zalm and Anne-Marie Demers)

**UMOYA ("Breathe"). Intra-thoracic tuberculosis in children: moving towards better diagnosis and improved lung health:** (PIs Liz Walters, Marieke van der Zalm). A diagnostic cohort study that builds on a previous diagnostic study led by Liz Walters and has leveraged funding from NIH, Thrasher Foundation, EDCTP (The European & Developing Countries Clinical Trials Partnership) and the South African MRC. UMOYA started recruitment November 2017 and currently has 270 children enrolled. The aim is to enrol 300 children with suspected TB and 100 healthy sibling controls from Tygerberg hospital and Karl Bremer hospital. The study will continue to evaluate improved diagnostic strategies for paediatric TB, including novel laboratory techniques for both molecular and culture-based diagnosis on respiratory and stool specimens. It will support ongoing evaluation of blood and urine biomarker work. In addition, the study will continue work to evaluate the interaction between viral and bacterial co-pathogens with TB and plans to assess and monitor lung function longitudinally in all children.

Additional funding and sub-studies were included in the platform in 2019 including:

- Butterfly ultrasound funded by the Bill and Melinda Gates Foundation. The Butterfly ultrasound study is a proof-of-concept study which aims to explore the use of lung ultrasound to discriminate between TB and non-TB lung disease in a paediatric population. Children will largely be recruited for the study from the Umoya platform. The Butterfly ultrasound is a handheld, single probe ultrasound device that connects to a phone or tablet and interfaces with a user-friendly App. The fact that this is a point-of-care tool designed for non-expert use, combined with its affordability, makes the Butterfly ultrasound a promising diagnostic tool, particularly in low-resource settings.
- Influenza project; subcontract with University of the Western Cape and Professor Megan Shaw to investigate genetic diversity of the influenza virus in children with suspected pulmonary TB. This is a 2-year subcontract; The Icahn School of Medicine at Mount Sinai (ISMMS) holds the contract from NIAID/NIH. UWC and Stellenbosch University will receive funds from a subcontract between ISMMS and the University of the Western Cape
- QOOL kids (Quality of life for children); Temporary Research assistance funding from the University of Stellenbosch for M Anthony working towards her PhD (Graeme Hoddinott/

Marieke van der Zalm).

- TiKa novel processing mycobacteriology method project; funding from the IMPAACT International Tuberculosis Specialty Laboratory (ITBSL) with kits provided by TiKa Diagnostics Ltd.

### **Evaluation of novel TB biomarkers in children**

**Study 1.** Urine proteomics: This project aims to identify host-derived urine proteins that are differentially expressed in children with TB compared to children with non-TB illness. The project is in collaboration with USA partners Robert Husson and Hanno Steen from Boston Children's Hospital, USA. This final year, the focus of the project has been to optimize the LC-MS/MS platform to achieve a high detection of proteins in urine samples. This is done in the Steen laboratory at Boston Children's Hospital, Harvard University. Data analysis will include both traditional logistic regression approaches (led by Harvard University) as well as bio-informatics methods (led jointly by Harvard and Stellenbosch Universities). A doctoral student, Ashley Ehlers, under the supervision of Prof Tabb from SU's Division of Molecular Biology and Human Genetics, has been awarded a scholarship by Boston Children's Hospital, to work on this project. Final data-analysis is expected in 2020.

**Study 2.** Serum bio-signatures. This project aims to identify pathogen-derived serum antigen peptides that are differentially expressed in children with TB compared to children with non-TB illness, using a novel NanoShell-MS assay. The project is in collaboration with US partner Tony Hu from Arizona State University and data-analysis is ongoing.

### **Epidemiological and operational research for paediatric TB**

Please refer to [Research focus Area Two: Health Systems and Operational Research](#) for updates of paediatric focused epidemiological and operational research studies.

#### **Research focus Area Two: 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 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.

This research focus area also includes epidemiological and routine data analyses, modelling, and health system strengthening research, all contributing to the overall aim of generating evidence to strengthen program implementation.

Highlights for 2019 includes the team's involvement with the WHO South African TB epidemiological review which was conducted in October 2019.

#### **Health Systems and Operational Research**

**Evaluating 10 years of TB control in South Africa:** (PI: Muhammad Osman; co-investigators: Karen du Preez, Anneke Hesselings, Rory Dunbar). Routine TB surveillance data have been under-utilised in identifying and understanding programme weaknesses and finding ways to address these. The socio-economic determinants that may be contributing to poor TB control have not been adequately evaluated. As South Africa scales up TB control efforts to achieve the even more ambitious "End TB Strategy" goals, a more data-driven approach to TB control efforts is required. This study aims to undertake a comprehensive, in-depth analysis of TB control in South Africa to review epidemiological trends from 2004 to 2016 and to identify achievements and programme gaps where intervention is

required. This project is not funded and is being implemented in collaboration with National Department of Health.

During the 2019 WHO South African TB epidemiological review, through this study we were able to assist NDOH with historical TB data for SA for 2004 – 2016 that had been cleaned and finalised. This contributed to a time series of aggregate district-level data that was uploaded onto DHIS2 and has been critical to the success of both the epidemiological as well as the national TB program review completed in 2019.

Current analyses include:

1. Case notifications and outcomes in adults and children
2. Spatial variability in South Africa
3. Key populations: Children and previously treated TB patients

**LINKEDin: reducing initial loss to follow up among tuberculosis patients in South Africa:** (PIs: Anneke Hesselting and Muhammad Osman). This study is funded by the Bill and Melinda Gates Foundation. Individuals diagnosed with TB, but who are lost to follow up before initiation of TB treatment and/or TB notification are referred to as “initial loss to follow up” (ILTFU). This study aims to: 1) demonstrate the impact of an automated notification system of TB patients in hospitals on increasing the number of notified TB cases; and 2) demonstrate the impact of the implementation of an automated alert-and-response TB patient management system on increasing the proportion of TB patients who are linked to TB services and who initiate treatment at different levels of health care. Implementation began in 2019 in 6 hospitals and 31 primary health care facilities in 3 provinces of South Africa; Western Cape, Gauteng and KwaZulu Natal. The DTTC is working closely with implementing partners; Centre for Infectious Disease Epidemiology and Research (CIDER) in the Western Cape Province, Right to Care in Gauteng Province and Interactive Research and development (IRD) in KwaZulu Natal, as well as local and provincial health departments. Using a before/after design, the study will measure the proportion of TB patients who are ILTFU at baseline and again at the end of the implementation phase. In the WCP, 4 sub-studies are being implemented to; 1) estimate costs associated with the interventions 2) determine patient experiences and social determinants of linkage to care, 3) quantify mortality among ILTFU TB patients and 4) pilot an innovative strategy for linkage to TB care. Preliminary analysis has identified that >50% of presumptive TB patients do not have smart phones or any cellular phone (self-reported). Some of the reasons TB patients provided for not linking to care includes; not knowing their TB result, insufficient information provided at discharge (hospital diagnosed patients) and mobility. Those who did link had good family support and were motivated to get well for their children. Implementation of the study interventions will continue until June 2020.

**Operational Research Assistance Program (ORAP):** 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.

In November 2016, a new miniature version of ORAP was implemented in the Western Cape. Participants (5 from health services) have embarked on an experiential learning course to develop three independent study protocols for research to be undertaken. Five mentors from the DTTC are supporting the trainees through protocol development, study implementation and publication of their findings. All three projects are approved for implementation by the Stellenbosch University Health Research Ethics Committee (HREC).

During 2019, data collection was completed, and mentored sessions were conducted to support the process of manuscript preparation

### **Research Focus Area Three: HIV Prevention Research**

The DTTC has made great strides in the field of HIV prevention with two studies as part of the HIV Prevention Trials Network (HPTN) conducted during 2018.

**HPTN 071 (PopART):** (SA PI: Peter Bok, Nulda Beyers) HPTN 071 (PopART) enrolment and follow-up was completed in June 2018. The HPTN 071 primary outcome results showed a 7% reduction in HIV incidence between Arm A (full intervention) to Arm C (control), which was not statistically significant ( $P=0.51$ ), and a 30% reduction comparing Arm B (intervention) to Arm C (control), which was statistically significant ( $P=0.006$ ). Following this, the DTTC team disseminated study results to a wide range of scientific, stakeholder, community and media audiences. The HPTN 071 results contributed significantly to the understanding of the role of treatment as prevention and have been widely disseminated both locally and internationally. Lessons from HPTN 071 include those gained during implementation of household HIV prevention intervention strategies and ART initiation at high CD4 counts. These implementation lessons have also been disseminated both locally and internationally and have resulted in the development of the South African DoH's community workers programme.

**HPTN 084 (LIFE):** (PI: Peter Bock) HPTN 084 (LIFE) is a phase 3, double blind, safety and efficacy study of long-acting injectable cabotegravir compared to daily oral TDF/FTC for PrEP in HIV- women. The projected total number of participants for recruitment across all sites is 3200. Enrolment is scheduled to continue till April 2020 and follow up until May 2022. Participants are HIV negative women aged 18 to 45 at high risk for HIV acquisition. By the end of December 2019, the DTTC Kuilsriver site had enrolled 111 participants. As the role of pre-exposure prophylaxis is not clearly defined yet in high burden settings such as SA, the results of the HPTN 084 study are keenly awaited as injectable PrEP may contribute significantly to reducing the number of new HIV cases. The DTTC received the HPTN Network Staff Excellence in Leadership Award to the DTTC, at the annual HPTN annual meeting, Washington DC, June 2019.

## **Crosscutting Research (Supporting all three research focus areas)**

### **Sociobehavioural Sciences**

During 2019, the Sociobehavioural science team continued to successfully implement a broad range of data collection and analysis activities as components of the wider DTTC research portfolio. The team has made strong contributions to all three research focus areas at the Centre. These activities range from determining how Quality of Life is measured for children affected by TB (Qool Kids); people's experiences of linking (or not linking) to TB treatment/care (LINKEDin); and an overview of current TB-preventative implementation across South Africa (TIP Study) for the South African TB Think Tank. Across activities, all data collection, management, processing and preparation for analysis is standardised and managed by a dedicated data quality team. In 2019, the team transcribed and translated approximately 1000 hours of recorded interview/discussion data.

In 2019, the team had several highlights, including the graduation of one PhD student, two master's students, and two honours students. A further three students were formally registered for the PhD degrees. Dr Graeme Hoddinott, the team lead, was also promoted to senior researcher. In addition, two team member, Kyla Meyerson and Dionne Jivan, were accepted into the highly competitive master's in clinical psychology programmes at the University of Johannesburg and the University of Stellenbosch respectively. The team led on or contributed to more than 8 major research grant applications for the Centre. Team members presented their work on several local and international platforms, including the AIDS Impact conference in London; the first Post lung health symposium held at Stellenbosch; and the Union Conference in India. The team submitted 7 academic manuscripts for publication.

A priority for 2020/2021 is to support staff in building capacity to lead in project implementation. A further priority is to continue to encourage post-graduate studies, and in doing so, building on the culture of academic learning and publication.

#### ***Sociobehavioural Science and Paediatric TB***

**Qool Kids:** In-depth qualitative interviews and observations with caregivers were conducted about the perceptions and understanding of quality of life in children with lung health complications. The study was nested in the UMOYA study: A diagnostic cohort that evaluates the improved diagnostics

strategies for paediatric tuberculosis. This set of interviews were conducted between October 2019 and November 2019. Semi-structured discussions were conducted with 10 caregivers' in order to understand their perceptions of quality of life and the effects that tuberculosis may have on the child's overall well-being. Data processing will be concluded in January and a report prepared in February 2020. A manuscript will be prepared for submission in 2020 as part of Michaile Anthony's PhD.

**TiP Study:** (PI: G Hoddinott). The TB Preventative Therapy review project (TiP Study) is funded by the South African TB Think Tank and comprised of two components: An scoping of review of literature on the state of TB preventative therapy (TPT) in South Africa; and a case description of TPT implementation at health facilities in three provinces in South Africa in order to describe the care cascade. We conducted 3 days of semi-structured observations per facility in the 31 selected facilities in the Western Cape, Eastern Cape and KwaZulu Natal. and conducted in-depth key-informant interviews (n=134) across the health facilities. Participants included: TB nurses, HIV nurses, counsellors, community health workers, community, doctors, facility managers, pharmacists, TB patients, and patients on TPT. The technical report has been submitted to the funders and finer analysis is ongoing.

**TB CHAMP costing:** The TB-CHAMP trial is testing a novel, child-friendly formulation of levofloxacin (see *Therapeutic trials: prevention of MDR-TB* above). In 2019 the TB CHAMP costing component was designed to assess the economic impact of paediatric MDR-TB treatment on households. As part of the costing component, 25 surveys were to be conducted with paediatric participants (aged 0-5 years) caregivers of Afrikaans and isiXhosa speaking backgrounds. Participants were given an electronic tablet and asked to complete a costing survey assessing the financial cost of MDR-TB on the household. Out of the stated 25 surveys to be conducted; 11 surveys were completed. The costing survey now awaits ethical approval to expand the age group of participants for the survey to reach its intended goal of 25 participants.

#### Sociobehavioural Science and Operational Research

#### **LINKEDin (Reducing initial loss to follow up among tuberculosis patients in South Africa) – Two sub-studies:**

**Patient Experiences:** This qualitative sub-study of the LINKEDin study was conducted to explore patient experiences of linking (or not linking) to care following TB diagnosis. We conducted repeated interviews (qualitative cohort) and semi-structured observations with TB patients in one sub-district within the Cape Town Metro district between June 2019 and January 2020. We included TB patients who linked without intervention (n=5), after an SMS or phone call (n=5), after a home visit from a community care worker (n=5) and failed to link (n=5). The qualitative data collection was done from June 2019 and will be completed in January 2020. Analysis of the data is ongoing.

**WIARS:** The 'WhatsApp-based interactive alert and response system (WIARS)' sub-study aimed to pilot and evaluate an innovative interactive communication strategy to prevent loss to follow-up among presumptive TB patients who submitted sputum for diagnosis at the local clinic in a high-incidence community in suburban Cape Town. The intervention consisted of three levels of communication: (1) WhatsApp-based interactive reminders to attend scheduled clinic visits, (2) the inclusion of proxy contacts in a WhatsApp chat to support attendance, and (3) prompts to share location information and receive a phone call for participants who missed a scheduled appointment. A total of 122 study participants were enrolled by the end of 2019. Results for the study are expected to be available in the first half of 2020.

#### Sociobehavioural Science and HIV Prevention Research

**HPTN 071 (PopART) and HPTN 071a (Stigma Ancillary Study):** The PopART study was a randomised controlled trial conducted in 21 communities Zambia and South Africa to determine if the implementation of a door-to-door HIV prevention package (including access to universal access to HIV testing and treatment) would decrease HIV incidence over the course of the trial. The Stigma

Ancillary Study was a mixed method study that nested enquiry about HIV stigma across the PopART study. In particular, it the study examines how health care worker knowledge, attitudes, and experiences of delivering HIV care are influenced by, and influence, the delivery and uptake of the PopART intervention. The PopART project ended in 2018, and the Sociobehavioural science team was involved with several dissemination events during 2019. This included providing logistical support for local community engagement events; attendance at the AIDS Impact conference in London to disseminate Stigma data on an academic platform; and submitting several academic manuscripts related to key findings of the trial.

## **Epidemiological Modelling of TB Control**

### Tuberculosis modelling

Modelling of tuberculosis and the impact of TB control interventions constitutes an additional core competency to be built at the DTTC in the forthcoming years. In 2019, a new strategic TB modelling partnership and research programme between the DTTC and the South African Centre of Excellence in Epidemiological Modelling and Analysis (SACEMA) was initiated. This novel initiative is intended to provide a platform for mathematical modelling and intervention research to inform decision making for TB control at national level in South Africa as well as internationally.

### Joint DTTC SACEMA TB Modelling Group

The joint DTTC-SACEMA TB Modelling Group, led by senior researcher Dr Florian Marx, currently consists of 10 members with backgrounds in medicine, epidemiology/public health, data management and statistics. In 2019, the group worked on a joint research project which aims to project the population-level impact of ART scale up on TB incidence and mortality in the nine South African Provinces. This first modelling project is expected to be completed in the first half of 2020. Dr Muhammad Osman and Dr Florian Marx became members of the new Task Group “TB Epidemiology and Modelling” of the TB Think Tank (National Department of Health). Dr Florian Marx received funding from the South African Medical Research Council, the TB Think Tank and SACEMA to host a National Symposium entitled “Mathematical Modelling Research to Guide Decision Making for Tuberculosis Control in South Africa”, which is scheduled to take place in late January 2020. The symposium will be a collaborative effort between the DTTC, SACEMA, CIDER (University of Cape Town) and the National TB Think Tank.

## **DTTC GRANTS AWARDED: 2019**

During 2019, staff at the DTTC applied for and received several large grants from multiple funding institutions. As a special achievement, Karen du Preez received an impact score of 14 on her NIH K43 Emerging Global Leader Award application. Several enrolled students at the DTTC were also successful in their funding applications.

<b>Grant</b>	<b>Title/Description</b>	<b>PI/ recipient</b>
Unitaid	BENEFIT Kids: Better Evidence and Formulations for Improved MDR-TB Treatment for Children	Tony Garcia-Prats Anneke Hesselring
Bill and Melinda Gates Foundation	Butterfly study. Pilot study linked to UMOYA (Ultrasound device app).	Megan Palmer Marieke van der Zalm
NIH K43 Emerging Global Leader Award	Interdisciplinary and multi-level approach to estimate the disease burden and outcomes of childhood tuberculous meningitis (Award start date Feb. 2020)	Karen du Preez
South African Medical Research	National Symposium:	Florian Marx

Council - National Conference	Mathematical Modelling Research to Guide Decision Making for Tuberculosis Control in South Africa	
Meningitis Now	SURE+DP: Diagnosis and Prognosis for paediatric tuberculous meningitis through the SURE treatment trial.	Robin Basu Roy (PI) James Seddon (Co-I)
Stellenbosch University: Scientific travel Fund	Travel funding for attending The TB Union Conference in India in October 2019	Sue-Ann Meehan Marieke van der Zalm
MRC/DFID African Research Leader scheme 2019 MR/T008814/1	Hotspots, hospitals and households: enhanced drug-resistant tuberculosis case finding in Namibia (H3TB)	Mareli Claassens James Seddon
Urban Infrastructures of Well-Being Programme	A method for rapidly assessing context in urban communities to optimise public health interventions: the case of water infrastructure in sub-Saharan African cities.	Virginia Bond (PI) Graeme Hoddinott (Co-PI)
Stellenbosch University: Temporary Research Assistance Funding	Project: Measuring TB-associated quality of life in young children.	Graeme Hoddinott
Sub-contract: University of the Western Cape	The Influenza project (part of Umoya). Support for a virology study to examine the influenza genetic diversity in children with and without PTB.	Megan Shaw Marieke van der Zalm
Imperial College Global Challenges Research Fund	Understanding the biology, morbidity and social context of adolescent tuberculosis	James Seddon
NRF PhD Completion grant	PhD: Love, sex and romance in the context of universal access to HIV testing and treatment	Lario Viljoen
Stellenbosch University Postgraduate Support Bursary.	MPhil: Exploring ways in which the management of household incomes affect antiretroviral therapy (ART) adherence of people living with HIV in the Western Cape	Abenathi Mcinziba

#### AWARDS AND OTHER RECOGNITION

1. Gerald Maarman received an Y2 NRF (National Research Foundation) rating and was featured on the Stellenbosch University Website. February 2019.
2. Dr Muhammad Osman received the 2019 HD Brede Award for Postgraduate Research in Infectious Disease in the Clinical research category at the Faculty of Medicine and Health Science annual academic day. Title: Treatment Outcomes in Global Systematic Review and Patient Meta-Analysis of Children with Extensively Drug-Resistant Tuberculosis.
3. The DTTC, as part of the HPTN 071 (PopART) study received an award for Staff Excellence in

Leadership Award from the HIV Prevention Trials Network in Washington, USA. 5 June 2019.

4. The HPTN also awarded the DTTC a Certificate of Excellence for the HPTN 084 (LIFE) study in recognition for timely query resolution.
5. Dr Rory Dunbar was formally promoted by Stellenbosch University to Faculty Researcher, securing funding for next three years.
6. Liz Walters has been awarded a clinical fellowship position (paediatric clinical immunology) at the Royal Victoria Infirmary in Newcastle-upon-Tyne, starting 30 October 2019.
7. Dr Graeme Hoddinott was promoted to Senior Researcher at the DTTC
8. Dr Peter Bock was promoted to the position of Associate Professor at the DTTC.

### DTTC ACADEMIC MEETINGS

The TB Clinical Forum 2019, hosted by the DTTC at the Stellenbosch University Faculty of Medicines and Health Science (FMHS) and organized by the City of Cape Town officials, was held monthly between February and November 2019 with the objective of creating an interactive platform for academic researchers and government official in health services. Experts from the FMHS and The City of Cape Town 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 the DTTC and the medical faculty. Ten speakers from the DTTC presented during 2019.

#### TB CLINICAL FORUM 2019

Date	Presenter	Topic
8 February	Muhammad Osman (DTTC) Anja Reuter (MSF) Kay Joseph (CCT) Dawood Da Costa (NHLS)	Highlights from the 49 <sup>th</sup> Union World Conference on Lung Health, The Hague, Netherlands
8 March	Anneke Hesselting (DTTC) James Seddon (DTTC) Gerhard Theron (SU)	TB Prevention in adults and children Maternal TB Prevention
12 April	Graeme Hoddinott (DTTC)	How do we involve communities in TB/HIV programmes and research? The Role of CAB/CAG.
10 May	Rod Dawson (UCT) Dr Veronique de Jager (TASK)	Management of DS-TB Failure: Practical Approach to Care Kit guidelines and algorithms of the TB drug sensitivity in adults and children  Increasing the dosages of Rifampicin in adults.
14 June	Jennifer Hughes (BCH)	Management of DS and DR -TB in pregnancy and research updates
12 July	Liz Walters (DTTC) Helene Rabie (SU)	HIV/TB Co-infection in children-current challenges and future opportunities



16 August	Graeme Meintjies (UCT)	HIV/TB Co-infection in adults- update
13 September	Muhammad Osman (DTTC) Florian Marx (DTTC) Sue-Ann Meehan (DTTC)	The use of routine data in TB/HIV research
25 October	Anneke Hesselning (DTTC)	Update on Paediatric TB treatment Trials
8 November	DTTC and MSF Speakers	Highlights from the 50 <sup>th</sup> Union World Conference on Lung Health held in Hyderabad India

### DTTC Academic Meetings 2019

The DTTC Academic Meetings 2019, held fortnightly at the Faculty of Medicines and Health Science (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.

Date	Presenter(s)	Topic
21 February	Samantha Fry	The perinatal outcomes of teenage pregnancies at Tygerberg Hospital.
7 March	Muhammad Osman	Systematic review of risk factors for TB mortality in South Africa.
14 March	Cheryl Day	Cellular immunity in <i>Mycobacterium tuberculosis</i> and HIV co-infection.
28 March	Peter Bock	Primary outcomes from the HPTN 071 (PopART) trial.
11 April	Graeme Hoddinott Hanlie Myburgh Rozanne Casper	<u>Socio-behavioural science and the future of HIV programmes</u> Behaviour change and responses to the HPTN 071 (PopART) intervention in Zambia and South Africa  Men's talk of HIV testing as maintaining social identity: a discourse analysis of qualitative data from the HPTN 071 (PopART) trial in South Africa and Zambia  Implementing 'universal' access to antiretroviral treatment in South Africa – a scoping review and critical analysis of challenges and opportunities
2 May	Liz Walters	The bacteriological spectrum of TB in a hospital-based cohort of children with intrathoracic TB

23 May	Florian Marx	Mathematical modelling of TB prevention and care in South Africa: Updates from the joint DTTC-SACEMA working group and prospects for future research and collaboration.
6 June	Nomtha Mandla	HPTN 071(PopART) Lessons learnt on reaching MEN
20 June	Graeme Hoddinott Lario Viljoen/ Virginia Bond Laing de Villiers	<u>HIV stigma and health services</u> Did HIV stigma undermine the effectiveness of the HPTN 071 (PopART) intervention?  A little bit more, a little bit less stigma: socio-structural factors that change community level stigma over time in Zambia and South Africa, HPTN 071 (PopART)  Identifying fluidity in the context of HIV prevention
11 July	Elsabe Brits	Storytelling & Science communication: When the curse of knowledge hits the jargon wall
25 July	Tony Garcia-Prats	Project Overview-Better Evidence and Formulations for Treatment of MDR-TB in Children- (BENEFIT KIDS)
1 August	Caryn Upton	CRUSH TB: Novelties in a TB trial
22 August	Sue-Ann Meehan Kyla Meyerson	Retention in care and factors critical for effectively implementing antiretroviral community-based adherence clubs in a rural district in the Western Cape  The reasons why I haven't tested yet" – A discourse analysis of qualitative data to understand why some people have never tested for HIV in Cape Town, South Africa
12 September	Karen du Preez	Childhood TB in South Africa - spatiotemporal heterogeneity
19 September	Brian Allwood	Post TB lung disease: What do we actually know
24 October	Elisa Lopez Kyla Meyerson	Site of disease pharmacokinetics in children with complicated intrathoracic TB.  Caregivers' and Health Workers' Perceptions of the Psychological Effects of Caregiver-child separation during tuberculosis hospitalization
19 Nov.	Denise Naniche	The HIV epidemic in rural Mozambique: reaching the first 90 target

28 Nov.	Presentations by the socio-behavioural science team: Melissa Nel Michael Anthony	A scale for rapidly ascribing socio-economic status estimates to neighbourhoods using observational and participatory research techniques  A photovoice study: Exploring the maternal embodied experience of women experiencing a high-risk pregnancy.
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## TB ADVOCACY

In celebration of World TB Day 2019, the DTTC held an event on Friday, the 29<sup>th</sup> of March 2019 at Tygerberg Campus for students and staff. Prof Anneke Hesseling announced the winners of the DTTC social media photo competition, #TBsTimelsUp, which generated much interest amongst staff and students. The winning entries came from, Mercia Kuhn, (DTTC); Michelle Moerdykem (Medical student) and Dzunisani Baloyi (DTTC). Linked to the “Stop TB” partnership’s global campaign, “It’s Time”, our programme, “TB through the Lens of Time”, featured three inspiring presentations:

- The history and future of TB treatment – Peter Donald
- Looking through a different lens: TB in Literature and the Arts – Sue Purchase
- A community perspective on TB – DTTC Community Advisory Board

Thereafter, Prof Hesseling hosted the launch and official opening of the “Robert Gie Ikamva Wing”, a new centre for paediatric TB research at Tygerberg. Robert Gie is considered one of the champions of TB research at Stellenbosch University and the isiXhosa word, “Ikamva” means “Future”.

## THE DTTC COMMUNITY ADVISORY BOARD (DTTC CAB)

The DTTC Community Advisory Board (CAB) was established in November 2015 to assist with the prioritisation and development of research protocols and to drive the research agenda of the organisation by guiding and sensitising researchers to the issues within the community including guidance on documentation and participant recruitment strategies. During 2019, the DTTC CAB reviewed 5 study protocols; 7 DTTC grant applications; and issued letters of support for 5 projects and contributed to the 2020/2021 Workplan Report for the HPTN network.



Figure 2. The DTTC Community Advisory Board

## DTTC CAB activities: January to December 2019

**International meetings:** Three members represented the DTTC CAB at international meetings during 2019. CAB chairperson, Godfrey Tabata, attended the HPTN Annual Meeting from 1 – 5 June in Washington, USA; The CAB co-chair, David Galetta attended the IMPAACT Annual Meeting from 10 –

14 June; and CAB TB advocate, Goodman Makanda, attended the 50<sup>th</sup> Union World Conference, in Hyderabad, India, in October 2019.

**Local meetings:** The DTTC CAB held monthly general meetings and quarterly Steering Committee (SC) meetings for the executive body. The CAB's ICAB (IMPAACT Community Advisory Board) representative participated in the IMPAACT network bi-monthly teleconference calls and the CAB HPTN network representative participated in the HPTN Community Working Group (CWG) monthly teleconference calls, including the HPTN Global Community Working Group conference calls.

**World TB Day:** CAB members participated in the Annual World TB Day commemoration with a drama performance highlighting the issue of stigma and TB in the community. The CAB also participated in the "It's Time" photo competition, hosted by the DTTC as part of the Stop TB Partnership initiative.

**Capacity building:** Experienced CAB members developed a capacity building programme and trained new members at the CAB Orientation Day on the 13<sup>th</sup> of April.

**Workshops, symposiums and lectures:** Two CAB members attended the South African National AIDS Council Stakeholder Workshop in Johannesburg on May 28<sup>th</sup>.

Three CAB members also attended the TB/HIV Care South Africa: TB Advocacy for Civil Society Workshop in Woodstock from 8-9 July 2019.

Twelve CAB members attended the Annual International Desmond Tutu Peace Lecture on 7<sup>th</sup> of October with keynote speaker, Strive Masiyiwa, philanthropist and entrepreneur. The topic for the event was "Tackling Corruption in the Private & Public Sector: Restoring Citizen Trust Locally and Globally".

One CAB member shared his life journey with XDR-TB at the Post-TB Lung Symposium held at Stellenbosch from 22 – 23 July and again at the 2019 DTTC Annual Dissemination Meeting, held on the 15<sup>th</sup> of November. Fifteen CAB members attended the dissemination event.

**In the media:** A youth CAB member shared her experience of living with MDR-TB on Red Cross Children's Hospital Radio on the 30<sup>th</sup> of March as part of their World TB Day programme on human rights.

**Extramural:** On the 23<sup>rd</sup> of February, youth CAB members attended the Stellenbosch University Open Day to find out more about course offerings, entrance requirements, accommodation and funding opportunities.

In December, all CAB members received branded DTTC summer t-shirts and winter down-feather puffer jackets, sponsored by the DTTC studies.

**Condolences:** Condolences were extended to colleagues and CAB members at TASK Applied Sciences with the passing of Community Engagement Officer, Vela Mhlola. CAB members attended the memorial and funeral services in October.

## **CONFERENCES, ACADEMIC MEETING AND EVENTS**

### **Conferences**

During 2019, team members from the DTTC participated in and presented at several local and international conferences, including the Union World Conference on Lung Health held in Hyderabad, India; the AIDS Impacts conference in London; the South African TB conference in Durban; the first International Post-Tuberculosis Symposium at Stellenbosch University; the Stellenbosch University Research Day; and several other events.

### **International conferences and events**

Conference on Retroviruses and Opportunistic Infections (CROI). Seattle, United States, 4 - 7 March 2019.

Attendees: Sue-Ann Meehan and Nomtha Mandla

Oral presentation

1. HPTN 071 (PopART): The impact of universal HIV testing and treatment in Zambia and South Africa. RJ Hayes, DJ Donnell, S Floyd, **N Mandla**, J Bwalya, K Shanaube, A Moore, SH Eshleman, C Fraser, WM. El-Sadr, **P Bock**, **N Beyers**, H Ayles, S Fidler.

#### Poster presentation

1. Better virological outcomes when initiating early ART in the HPTN 071 (PopART) trial in South Africa. G Fatti, A Grimwood, **S Meehan**, JB Nachega, J Nelson, K La Sorda, G van Zyl, N Grobbelaar, H Ayles, R Hayes, **N Beyers**, S Fidler, **P Bock**, on behalf of the HPTN 071 (PopART) study team.

#### 26<sup>th</sup> International HIV Dynamics and Evolution conference. Portugal, 24 - 27 March 2019.

##### Poster presentation

1. Near full-length HIV-1 subtype B sequences from the early South African epidemic, detecting a BD unique recombinant form (URF) from a sample in 1985. **AE Obasa**, S Engelbrecht, GB Jacobs

#### 14<sup>th</sup> International AIDS Impact Conference. London, UK, July 2019.

##### *Plenary session: HIV stigma and Universal Test and Treat: results from the HPTN 071 (PopART) Stigma ancillary study.*

##### Oral presentations:

1. Did HIV stigma undermine the effectiveness of the HPTN071 (PopART) intervention? **G Hoddinott**.
2. A little bit more or less stigma: socio-structural factors that influence community level stigma over time in Zambia and South Africa, HPTN 071 (PopART). **L Viljoen**.

#### 50<sup>th</sup> Union World Conference on Lung Health. Hyderabad India, 30 October- 2 November 2019.

##### Press briefing

1. Unitaid Project Press Briefing on BENEFIT Kids Project. **T Garcia-Prats**.

##### Panel Discussions

1. Unitaid New MDR-TB Projects Launch Event, Panel discussion, BENEFIT Kids Project. **T Garcia-Prats**.
2. The use of new diagnostic tools (Ultra, Fuji LAM, digital CXR), alternative specimens (NPA and stool), and improving diagnosis in children with HIV, pneumonia and malnutrition. **J Seddon**.

##### Oral Presentations

1. Site of disease pharmacokinetics in Children with complicated intrathoracic TB. E Lopez.
2. Update on important publications in childhood TB. **J Seddon**
3. No more neglect for children with MDR-TB: The BENEFIT Kids Project. **T Garcia-Prats**.
4. Children with MDR-TB: Practical considerations on drugs and dosages for designing a treatment regimen. **T Garcia-Prats**.
5. Optimizing rifampicin exposure in children towards treatment shortening and treatment of severe disease: Opti-Rif. **T Garcia-Prats**.
6. Lung Health and well-being after TB: Clinical picture and definitions, across the life course. **M van der Zalm**.
7. Update on clinical and programmatic management of MDR-TB and XDR-TB: MDR-TB in children. **HS Schaaf**.
8. Defining the epidemic in children: Drug resistance surveillance in children with confirmed tuberculosis in the era of Xpert MTB/RIF Ultra. **HS Schaaf**.
9. Adjunctive Therapy for Tuberculous Meningitis in the Reducing Deaths from Tuberculous Meningitis Symposium. **J Seddon**.
10. Detection and prevention of DR-TB in children and adolescents in Africa in the symposium. **J Seddon**.
11. Palatability and acceptance of routinely used formulations of levofloxacin, Moxifloxacin and linezolid among South African children treated for multidrug-resistant tuberculosis - Closing

the gap: addressing challenges of identification and management of childhood TB. **J Winckler.**

Poster presentations:

1. Caregivers' and health workers' perceptions on the effects of caregiver-child separation during long-term hospitalisation for MDR-TB: a qualitative study in the Western Cape, South Africa. **K Meyerson.**
2. The effect of age and sex on tuberculosis case notification rates in South Africa: 2004 – 2016. **M Osman.**
3. Paediatric and adolescent tuberculosis mortality in South Africa: 2004 – 2016. **M Osman.**
4. Under reporting among tuberculosis (TB) patients diagnosed in hospital – highlighting a gap in the South African TB Care cascade. **S Meehan.**
5. Implementing an enhanced case-finding strategy for children and adolescents exposed to rifampicin-resistant tuberculosis: lessons from Khayelitsha, South Africa. E Mohr-Holland, I Apolis I, ... **J Seddon,** et al.
6. Excellent treatment outcomes amongst children with drug-resistant tuberculosis: a cohort study from Tajikistan. J Achar, **J Seddon** ... et al.

Guidelines:

1. **J Hughes** led the paediatric component of the updated 2019 South African National MDR-TB treatment guidelines.

11<sup>th</sup> World Society for Paediatric Infectious Diseases conference. Manila, Philippines. 5-8 November 2019.

Oral Presentations

1. Treatment of multidrug resistant TB in children – a changing scene. **HS Schaaf.**

First International Post-Tuberculosis Symposium & Working Meeting. Stellenbosch University, 22-23 July 2019.

65 invited delegates from around the world took part in the two-day event. Attendees from the DTTC included: Marieke van der Zalm, Brian Allwood, Florian Marx, Anneke Hesselning, Graeme Hoddinott, Dillon Wademan and Muhammad Osman.

Session chairs

1. **G Hoddinott** chaired a session: "Impact on post-Socioeconomic long-term consequences".
2. **F Marx** chaired a session: "Former TB patients in the context of the End TB Strategy".
3. **M van der Zalm** chaired a session: Paediatric complications of TB"

Presentations:

1. Targeting TB control to former TB patients. **F Marx.**
2. Mortality after TB. **M Osman.**
3. Life after tuberculosis: Some data, some examples, some thoughts and some theory. **D Wademan.**

**Local academic conferences and events**

Africa day at Stellenbosch University. Tygerberg Campus, 24 May 2019.

1. Theme: Contribution to the SDGs through our partnerships.  
Presentation: "FMHS Case studies of partnerships on the continent". **P Bock** on behalf of the HPTN 071 (PopART) team.

Post- Tuberculosis Interest Group meeting. Tygerberg Campus. 19 June 2019

1. "TB is a disease which hides in the body": Fears and experiences of recurrent TB in Zambia and South Africa. **D Wademan.**
2. Targeting TB prevention & care to people with a history of previous TB treatment. **F Marx.**

SACEMA Public Lecture. STIAS, Stellenbosch. 6 May 2019

1. Heterogeneity in the risk of disease progression – implications for tuberculosis control in high-transmission settings. **F Marx.**

South Africa AIDS Conference. Durban, 11-13 June 2019.

*National Department of Health/PEPFAR Satellite session: Toward HIV epidemic control - Lessons from research to practice*

Oral presentations:

1. HPTN 071 (PopART) Primary Results and Implementation Lessons. Peter Bock.
2. Retention in care and factors critical for effectively implementing antiretroviral community-based adherence clubs in a rural district in the Western Cape. **P Bock, G Hoddinott, L Maschilla, R Holtman, N Grobbelaar, D Wademan, R Dunbar, G Fatti, J Kruger, N Ford, C Gunst, S Meehan**
3. HPTN 071(PopART) Lessons learnt on reaching men. **N Mandla**

*TB Think Tank Satellite Session: New Policy Directions for the SA TB Programme*

Oral presentation:

1. Aiming towards zero deaths. **M Osman.**

6<sup>th</sup> Southern African Students' Psychology Conference. Johannesburg, 24 -26 June 2019.

Oral presentation:

1. Exploring Caregivers' and Health Workers' Perceptions on the Effects of Caregiver-child Separation during Long-term Hospitalisation for MDR-TB in the Western Cape: A Qualitative Study. **K Meyerson.**

MPhil Transdisciplinary Health and Development Studies Student research presentations. Tygerberg Campus, 29 July 2019.

1. The development and validation of a quality of life measure for children living with tuberculosis in the Western Cape South Africa. **M Anthony.**
2. Understanding how food security influences Anti-Retroviral Therapy (ART) adherence for people living with HIV (PLHIV) in Khayelitsha, Western Cape. **B Mbenyana.**
3. Exploring the ways in which the management of household incomes affect ART adherence behaviour of people living with HIV in the Western Cape. **A Mcinziba.**
4. Exploring relationships between members of different generations: An older person's perspective. **D Baloyi.**

62<sup>nd</sup> Annual Academic Year Day at Tygerberg Medical Campus, Stellenbosch University, 21 August 2019.

Peter Bock, Rory Dunbar, Florian Marx and Sue-Ann Meehan were invited to give 'state of the art' presentations (based on their PhDs).

Oral presentations:

1. Reducing tuberculosis in the local communities through targeted prevention and care strategies – the example of former TB patients in suburban Cape Town. **F Marx.**

2. How can operational modelling inform the scale-up of new molecular diagnostic tools for tuberculosis? **R Dunbar.**
3. The impact of the HPTN 071 (PopART) intervention on mortality and AIDS related morbidity amongst HIV positive adults in South Africa. **P Bock.**
4. The contribution of a community based HIV counselling and testing (HCT) initiative in working towards increasing access to HIV counselling and testing Cape Town, South Africa. **S Meehan.**

Poster presentation:

1. Palatability and acceptability of routinely used formulations of Levofloxacin, Moxifloxacin and Linezolid among South African children treated for multidrug-resistant tuberculosis. **J Winckler.**

National TB Think Tank Meeting, Johannesburg, 14 of August 2019.

Presentations:

1. Systematic review of risk factors or TB mortality in South Africa 2010-2018. **M Osman.**
2. Update on the TB Preventative therapy review study (TiP Study). **G Hoddinott.**

25th Annual South Africa Psychology Congress. Johannesburg, South Africa, 4 – 6 September 2019.

Oral presentation:

1. A photo-voice study: Exploring the maternal embodied experiences of women experiencing a high-risk pregnancy. **M Anthony.**

Annual Public Health Association of South Africa (PHASA) Conference. Cape Town, South Africa, 16 – 18 September 2019.

TB Symposium oral presentation:

1. The advancements of Paediatric TB – the South African story. **K du Preez.**

**Scientific Meetings, Workshops and training events**

**February 2019**

- UNITAID meeting. Geneva. 11-17 February 2019. Attended by Tony Garcia-Prats.
- Impaact meeting. Washington DC. 11-13 February 2019.
- TB PADO meeting. Geneva, Switzerland.. 14-15 February 2019. Anneke Hesseling attended.

**March 2019**

- 3<sup>rd</sup> Tuberculous Meningitis International Consortium Meeting. Lucknow, India. 1-2 March 2019. James Seddon attended.
- TB Diagnostics and biomarker meeting.. 4-5 March 2019. Liz Walters presented.
- Here be lungs 8th annual conference, Stellenbosch, South Africa. 6-8 March 2019. Marieke van der Zalm attended.
- NICD meeting on Modelling & Capacity Building at the DTTC. (Florian Marx) attended. 14 March 2019.
- TB Consortium Meeting, Durban. Anneke Hesseling, Muhammad Osman, Sue-Ann Meehan attended. 18 March 2019.
- Anneke Hesseling attended an NDOH meeting in Johannesburg for the release of the new guidelines on preventative therapy for TB in adults using Rifampicin and Isoniazid. Regimen shortening, information on the guidelines of MDR treatment, strengthening services and care preferences, inclusive of adolescents and children 0-14years. 18 March 2019.



- BARC Refresher Training course in Johannesburg. TB CHAMP team attended. 15 March 2019.
- Leadership Training. Margaret attended a practical course (PULSE) presented by Stellenbosch and sponsored by SETA. 4 March 2019.

#### **April 2019**

- The TB Champ Trial Steering Committee attended a Webex meeting. 30 April 2019.

#### **May 2019**

- Liz Walters travelled to Belgium and the United Kingdom. Meeting with collaborators from Imperial College in London and with Dr Meyts (H.O. Clinical Immunology) in Leuven. Exploring possible fellowship opportunities in clinical immunology. 9 – 17 May 2019.
- Anneke Hesseling, Jana Winckler and Caryn Upton from TASK attended the TBTC meeting in Atlanta, USA. 13-17 May 2019.
- DTTC staff attended the Symposium on Race as a variable in scientific research - Controversies & Concerns presented at Tygerberg campus. 13 May 2019.
- Lario Viljoen, Laing de Villiers, Siphosethu Nco and Luthando Ngwatyu attended the SANAC National Stakeholders Meetings, Johannesburg. Review and approval of draft three-year implementation plan for a comprehensive response to human rights and gender-related barriers to HIV and TB services. 29 May 2019.
- Sue-Ann Meehan completed a research ethics courses (through TRREE) as part of her orientation and training as a member of the Health Research Ethics Committee (HREC) committee. April 2019.
- Asanda Mfazwa and Noludwe Mabandela attended Good Clinic Practice training by CREDE in April and December respectively.
- Marieke van der Zalm and Margaret van Niekerk attended the Funding opportunities with the Trasher Research Fund seminar. 24 May 2019.
- Training for the Khayelitsha and Eastern Sub-Districts Medical Officers in paediatric chest x-ray reading. The meeting was led by MSF staff. James Seddon and Jenny Hughes attended. 29 May 2019.
- Frieda Verheye-Dua attended the SAHPRA Workshops. 31 May 2019 and 29 November 2019.
- The diagnostic team attended several refresher courses between May and June 2019. Training was presented by Margaret van Niekerk and Ngamso Cawe.

#### **June 2019**

- Lario Viljoen travelled to Zambia in Lusaka, Zambia for a writing workshop for the AIDS Impact conference paper. 3–5 June 2019.
- Jabulile Mantantana, Noziswe Makola, Gwynneth Hendricks and CAB chairperson, Godfrey Tabata attended the HPTN Annual Meeting in Washington, USA. 1-5 June 2019.
- Anneke Hesseling, Anne-Marie Demers, Petra de Koker, Tony Garcia-Prats, Simon Schaaf, Frieda Verheye-Dua, Gwynneth Hendricks and CAB co-chairperson, David Galetta attended the IMPAACT Annual Meeting and scientific retreat in Washington, USA. 10 - 14 June 2019.
- Anne-Marie Demers attended the ACTG (AIDS Clinical Trials Group) Annual Meeting, Crystal City Hotel, Washington DC, USA. 21-24 June 2019.
- Staff attended the Western Cape TB Consortium working group quarterly meeting. 28 June 2019.
- DTTC staff attended the African Microbiome Institute (AMI) Scientific Forum. Speakers: Dr Lucky Nesengani and Dr Suventha Moodley. 5 June 2019.
- Sterna Brand attended the Siyakhula (Embracing the new normal) course, presented by Stellenbosch University on Stellenbosch campus from 19 -21 June 2019.
- Rozanne Casper, Kyla Meyerson, Arlene Marthinus and Michaile Anthony attended a talk by Dr Gail Wyatt from UCLA entitled “Are experiences of trauma and its measurement country or culture bound? An empirical response” at the Stellenbosch Psychiatry department. 20 June 2019.
- Michaile Anthony, Verah Luke and Khanyisa Mcimeli attended the “Inside Out Pop-Up Story Salon” at Community House, Salt River. 20 June 2019.

## **July 2019**

- Anne-Marie Demers visited the European Society of Biology from 1- 5 July 2019.
- Marieke van der Zalm attended the South African Thoracic Society (SATS) symposium in Pretoria and face-to-face meeting with the African infant and pre-school lung function working group. 6 July 2019.
- DTTC staff members attended the Clinical Trials Unit Academic meeting held at Tygerberg. Elsabe Brits presented on story-telling and science communication. 11 July 2019.
- The HPTN 084 Participant Retention Event was held on 19 July 2019.
- Rory Dunbar and the DTTC data team attended the Launch of the Stellenbosch University School of Data Science and Computational Thinking at STIAS in Stellenbosch on 29 July 2019.
- Community advisory Board (CAB) members Siphosethu, Thandiwe and Khanyisa Mcimeli from Social Sciences attended the TB Advocacy for Civil Society Workshop, in Woodstock. 8 - 9 July 2019.
- The HPTN 084 Team attended a recruitment and retention workshop at the Devonvale Wine and Golf Estate on 12 July 2019.
- Anneke Hesseling, Petra de Koker, Jana Winckler, Anne-Marie Demers and Anneen van Deventer attended Study 35 training. 15-16 July 2019.
- Laing de Villiers attended a PhD student exchange programme with King's College in London, UK from 15 July to 15 August.

## **August 2019**

- Karen du Preez attended the "Let's pack your Science Communication Toolbox Workshop" presented by The Centre for Research on Evaluation, Science and Technology (CREST), Stellenbosch University. 6 August 2019.
- Muhammad Osman, Sue-Ann Meehan, Florian Marx, Marieke van der Zalm, Liz Walters and Graeme Hoddinott attended the National TB Think Tank Meeting in Johannesburg. 14 August 2019.
- Sue-Ann Meehan and Muhammad Osman conducted LINKEDin site visits Baragwanath and Edenvale Hospitals and Alexandra clinics. 15 – 16 August 2019.
- Liz Walters travelled to the United Kingdom from the 31 August to 11 September to meet with the team at the "Host Defence Unit" at the Royal Victoria Infirmary in Newcastle-upon-Tyne, where she took up a clinical fellowship position from 30 October 2019.
- Dzunisani Baloyi, Michaile Anthony and Kyla Meyerson did data collection for the TiP Study in the Eastern Cape and Kwazulu-Natal from August – September.

## **September 2019**

- Hanlie Myburgh visited the University of Amsterdam (UvA) from September to November. She is registered for a PhD in the Anthropology Department at UvA.
- Muhammad Osman and Sue-Ann Meehan travelled to Johannesburg (City) and KwaZulu-Natal (Ugu District) for LINKEDin site visits in August and September 2019 respectively.
- James Seddon met with Mareli Claassens in Windhoek, Namibia, to discuss the British MRC African Research Leader Fellowship interview. James had a tour of the University of Namibia and the National TB Hospital.
- James Seddon travelled to Namibia for the first Namibian National TB Research Consortium Meeting on 11 September 2019.
- The final Infection Prevention Control training for 2019 was presented by Leverne Africa and Klassina Zimri. 6 September 2019.
- Karen du Preez attended a Thesis Writing Skills Workshop presented by the Stellenbosch University Language Centre. 16-17 September 2019.

## **October 2019**

- Jessica workman presented SharePoint training to all DTTC staff. 2 October 2019. Anneke Hesseling travelled to Atlanta, USA for the TBTC meeting. 3-8 October 2019.
- Florian Marx, Anneke Hesseling, Sue-Ann Meehan and Muhammad Osman attended the

DISRUPT TB Consortium Meeting. 3 October 2019.

- Anneke Hesseling participated in a National TB Think Tank CP Therapy Preventative Taskforce quarterly meeting. 22 October 2019.
- Muhammad Osman, Karen du Preez and Rory Dunbar provided off site support for the TB Epi Review Meeting. 24-25 October 2019.
- 10 DTTC staff members travelled to Hyderabad, India for the 50th Union World Conference on Lung Health in October.
- Portia Hendricks attended the Stellenbosch University Supervisory course over 3 days in October 2019.
- Muhammad Osman attended the MRC Early Career Scientist Convention. 9-11 October 2019.
- Staff members from the DTTC attended the IPC course and obtained a test score of 90% and more: Shane Maker, Cindy Seconds, Warren Zimri, Marsha Maker, Rubaine Sayers, Danite Bester and Jennifer Hughes.
- Adnaan Samsodien attended the Infection and Prevention Control Day at Tygerberg Hospital. 24 October 2019.

### **November 2019**

- Graeme Hoddinott was invited by Anova to be part of a panel discussion at the Department of Health (Cape Metro) Quality Summit. 1 November 2019.
- Jessica Workman visited TB Champ Sites in November – Matlosana and Shandukani.
- Denise Naniche, a Research Professor and Co-Chair of the Viral and Bacterial Infections Programme at the Barcelona Institute of Global Health (ISGLOBAL), presented a special Lunch Time Academic Meeting on the 18th of November: The HIV epidemic in Rural Mozambique: reaching the first 90 target.
- Elisa Loez, Gert van Zyl, Sue-Ann Meehan and Peter Bock met with Denise Naniche from IS Global to discuss possible research collaboration 18 November 2019.
- James Seddon travelled to London for clinical duties. 22 November - 8 December 2019.
- Megan Palmer travelled to Sierra Leone for the TB Speed project. 22 November 2019.
- Anneke Hesseling and Karen du Preez participated in the National Preventative Therapy Working group call for the South African Think Tank. 26 November 2019.
- Several staff members attended the Paediatrics and Child Health Academic Day of Excellence. 27 November 2019.
- Muhammad Osman and Sue-Ann Meehan attend the LINKEDin WC TB Consortium Working Group Meeting. 29 November 2019.

### **December 2019**

- The Socio-behavioural Science Team held their Strategic Retreat at Tygerberg. 2 December 2019.
- Marieke van der Zalm represented the DTTC at the Department Strategic Meeting. 6 December 2019.
- Florian Marx attended the 7th International Conference on Infectious Disease Dynamics in South Carolina and attended meetings in New Haven and Boston. 2 -13 December 2019.
- Lario Viljoen and Karen du Preez attended the masterclass in scientific communication at the Centre for Research on Evaluation, Science and Technology (CREST), in Stellenbosch. 4-5 December 2019.
- Boniswa Jali completed her PGDip in nursing management.
- John Wolmerans and Asanda Mfazwe completed the Plus Programme presented by Stellenbosch University.
- Jenny Hughes attended the APLS course. 21 - 22 November 2019.
- National TB Preventative Therapy Working Group met on the 26th of November in Pretoria.
- Lario Viljoen and Tina Sachs attended online Unipro training from Unitaid. 11 December 2019.

### **Ongoing 2019**

- Joint SUN-CTU CAB Leadership Group Meetings (DTTC CAB EXCO; TASK CAB EXCO; FAMCRU ExCo). Meetings held throughout the year.

- Working Group for Data Analysis & Modelling (WGDAM). WGDAM is a working that aims to produce research outputs related to TB and health. The Working Group held weekly meetings at the DTTC from February onwards.
- The Research Methods for Transdisciplinary Health and Development Studies short course is offered by the Desmond Tutu TB Centre and the Sociology & Social Anthropology Department and presented by Graeme Hoddinott and Lario Viljoen. Four staff members also attending the course.

### VISITORS AT THE DTTC DURING 2019

In addition to several monitoring visits over the course of 2019, the DTTC also hosted the following visitors at the Centre:

Date	Visitor	Reason
14 – 15 March	Prof Cheryl Day, Emory University	Paediatric visit and Academic meeting presentation
15 March	Jenny Furin, WHO	Consultation
29 April	Lilly Verhagen, Utrecht	DTTC visit
13 May	Dr Pren Naidoo, Gates Foundation.	LINKEDin Site meeting at KDH and Site B
27 May	Daniel Chin and others from the Bill and Melinda Gates Foundation	LINKEDin: Study progress visit/ TB digitalisation in Khayelitsha, followed by a Site B visit
29 April – 3 May	Sara de Winter	Short internship
3-7 June	Mr Isaacs	SAHPRA GCP inspection on P1101 & HPTN084 studies
17 – 21 June	Dr Virginia Bond, Zambart, LSHTM	Manuscript writing workshop with the Socio-behavioural science team
30-31 July	ETR Project monitoring visit from RYMDS Unit : Sicelo Dlamini	Monitoring & Evaluation Unit National TB Programme
30 September-4 October	Sarah Johnson	Sarah Johnson has been awarded a one-year Wellcome Trust Institutional Strategic Support Fund Global Health Clinical Research Training Fellowship from Imperial College
4 October	Right to Care Lucy Connell Thandi Dlamini	Visiting the LINKEDin team and completed site visits at Tygerberg and Khayelitsha District Hospital
10-11 October	Ekaterina Rykonova, Dessislavla Tarlton, Alex de Brun, Unitaid Representatives	Kick-off meeting: BENEFIT Kids Project
9-11 October	Zvia Shwartz, Senior Specialist, External Affairs at the Global Alliance for TB Drug Development	Visiting Brooklyn Chest Hospital and DTTC
25 October	Bill & Melinda Gates Foundation	Community walkabout in the Nomzamo area.
15 November	Deborah Lewinshohn & David Lewinshohn. Oregon Health & Science University	Stellenbosch University visit

28 November	Eric McCollum. Johns Hopkins School of Medicine	Expertise in global child respiratory health visiting with Anneke Hesselning and Marieke van der Zalm
10 November	Catherine Snow	Visit to Desmond Tutu TB Centre
5 – 6 December	Erin Sizemore & Jessica Ricaldi Camahuali CDC, TBTC	Visit to Brooklyn Chest Hospital – TBTC Study 35

## KEY DISSEMINATION EVENTS

### HPTN 071 (PopART) Dissemination Meetings

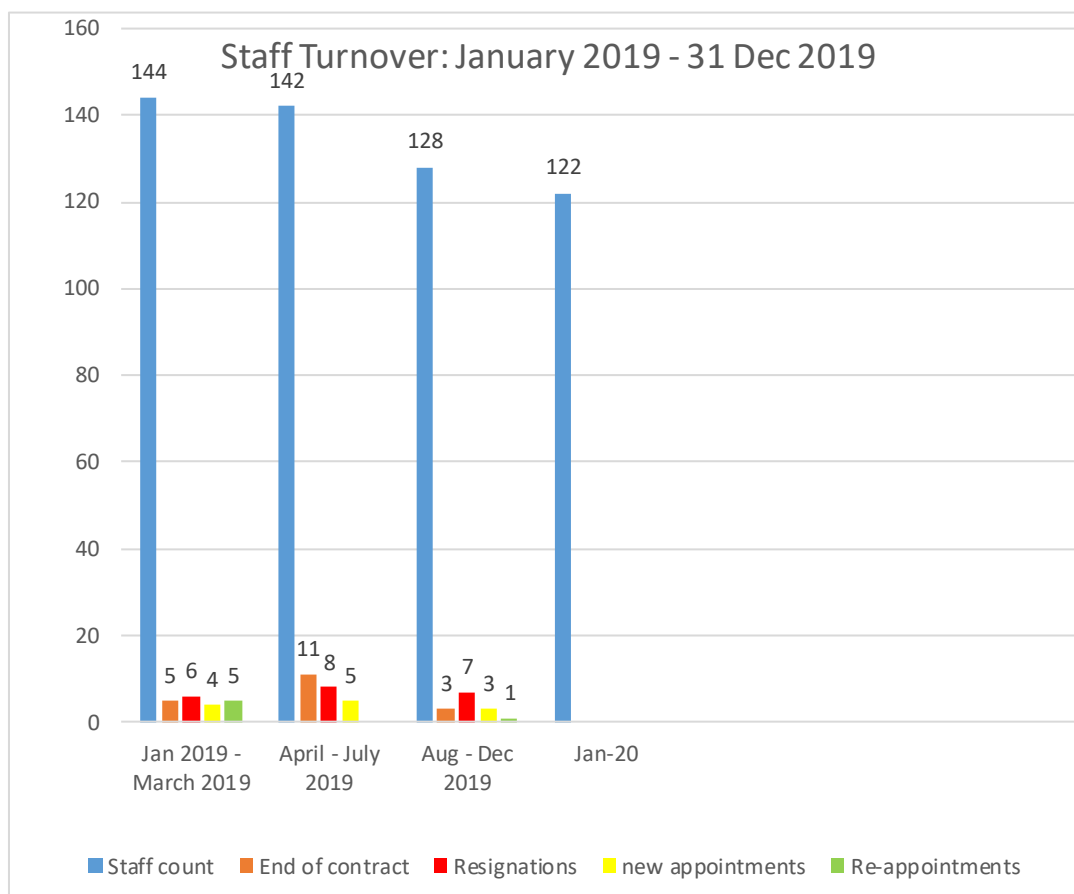
After five years of implementing the HPTN 071 (PopART) community randomised control trial, dissemination meetings were held in order to disseminate study results to stakeholders and community members. These events were held at local community halls and well attended by community members. HIV prevention messaging was presented through local drama groups and community stakeholders participated by providing HIV prevention messaging. Results were communicated through a PopART video and an interactive presentation.

Date	Attendees
1 March	PopART Stakeholders: Government stakeholders (Western Cape Government, health, COCT health, Stellenbosch University stakeholders, CTU members, CAB, former PopART staff.
11 - 19 March	7 Events with community members, former staff, and community stakeholders
26 March	CAB dissolving ceremony: PopART CAB members

## EMPLOYEES

During 2019 a total of 19 employee contracts ended. A total of 21 additional employees resigned, seeking permanent employment elsewhere. The Centre also employed 12 new staff members on different studies, linked to different post levels. Six staff members could be re-employed, ensuring that skilled staff are retained, as set out in our comprehensive HR retention strategy. Professor Anthony Garcia-Prats has relocated with his family to the United States of America and continues to work actively with the DTTC on multiple projects, including as lead on the UNITAID Benefit-Kids project.

The centre has expanded its focus on employee wellness, including TB and other infectious disease screening and prevention, infection control training, psychosocial support of individuals and teams, team building events, and yoga.



## DTTC GOVERNANCE

### DTTC Executive Committee (ExCo)

The DTTC is led by the Director, Anneke Hesseling, who is assisted by an Executive Committee (EXCO) of 12 senior scientific and core support DTTC staff members. The Director, who chairs the EXCO, reports to the Executive Head of the Department of Paediatrics and Child Health, Faculty of Medicine and Health Sciences as well as the DTTC Governing Board, which is responsible for oversight of the DTTC's strategic management. The governing board is chaired by Professor Andrew Whitelaw, Dept. Medical Microbiology and NHLS, Tygerberg; vice-chair: Professor Wolfgang Preiser: Division Head: Medical Virology. 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 once a month. In addition, there is a dedicated 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.

In November 2019, the DTTC ExCo submitted a Clinical Trials Unit (CTU) application to strengthen core funding at the centre and to ensure continued support for studies conducted across all platforms at the DTTC.

Primary focus areas for 2020 will include applying to remain within the TBTC networks, which will ensure core and study specific funding over a 7-year period. In addition, the DTTC is actively applying for further research opportunities to strengthen the core funding for the centre.

## DTTC Executive Committee Roles and Responsibilities

Name	Role
Prof Anneke Hesselning	DTTC Director and chair of DTTC ExCo
Dr Megan Palmer	Medical director of the Desmond Tutu TB Centre Brooklyn Chest Hospital Paediatric Pharmacokinetics Unit
Dr Marieke van der Zalm	Clinical lead: Paediatric lung health studies
Dr Frieda Verheye-Dua	Regulatory Manager
Prof Simon Schaaf	Lead investigator Paediatric MDR-TB studies
Dr Sue-Ann Meehan	Project Manager and co-investigator
Dr Peter Bock	Lead HIV Prevention research
Dr Muhammad Osman	Lead: Implementation Research
Dr Graeme Hoddinott	Lead Sociobehavioural Scientist
Mrs Sterna Brand	Human Resources Manager
Mr Theo Smith	Operations Manager
Dr Rory Dunbar	Data centre manager
Dr Anne-Marie Demers	Laboratory Director

### Risk Management

**Risks related to Human Resources, Finance and Regulatory are being monitored and evaluated on a regular basis.**

The DTTC regulatory office will ensure that no study is commenced without appropriate regulatory approval.

The protection of study participant confidentiality remains a high priority for the DTTC in our aim to deliver high quality reputable research outputs. The DTTC will continue to support staff training in good clinical practice (GCP) and research confidentiality prior to any study commencement. Through constant data monitoring by dedicated data centre staff, dual entry of any research information as well as GCP training, the DTTC will continue to mitigate against data fabrication. The regulatory office will also monitor the import of drugs or export of any materials to research partners to ensure no transfer is commenced without appropriate documentation.

During 2019, the centre actively improved communications platforms, including the launch of the new DTTC website. The DTTC is also involved in ongoing efforts to improve marketing and communications efforts in order to expand our local and global footprints and to further develop relationships with new and current external stakeholders.

Accessibility to communities for recruitment and retention of study participants is still a potential risk. The DTTC continues to support various DTTC Field offices in various communities. The DTTC has also invested in developing community advisory boards (CABs). Leadership management in field offices mitigates against any HR irregularities (attendance, working hours) that may arise.

There are ongoing efforts to obtain core funding to ensure the sustainability of core support staff and to decrease related risks. Due to the successful securing of funding for several new projects, several staff had contracts renewed. As such, there was a significant risk reduction in terms of human resources and lower staff turnover rates were ensured.

Political instability and violence or unrest in study communities place staff and patient safety at risk. The DTTC has implemented many safety measures but have also identified various other measures to provide safe working conditions for staff. During 2020 all DTTC drivers will be retrained in defensive driving, including highjack prevention and evaluation. The high burden of TB disease and HIV infection among the population served, poses a health risk to DTTC staff. The DTTC has taken many infection control measures through modification of vehicles and site offices.

The first round of Infection prevention control (IPC) training was successfully completed during 2019. Evaluation methods have been implemented to secure ongoing training during 2020. The DTTC ensures that all staff receive annual health screenings. After the completion of a baseline Hepatitis B

testing campaign for all staff during 2018 and 2019, staff were vaccinated in line with national guidelines.

The DTTC is committed to adhere to SU management code of conduct which includes diversity aspects and identifying candidates from disadvantaged backgrounds for internal promotion.

Ongoing formal training linked to supervision programs has been implemented to support master's and PhD students and will be maintained.

The DTTC employs a cadre of finance staff who work closely with the faculty research grants management office (RGMO) to ensure no misappropriation of research funds takes place. Regular expenditure allocation, reporting and finance meetings are held to mitigate against any misappropriation. Correct budgeting in collaboration with RGMO will also mitigate against large exchange rate loss. An internal promotion at operations level will secure management of best financial practice in the future.



**ACKNOWLEDGEMENTS AND FUNDERS**



**International Collaborators | Funders | Partners**



# South African Collaborators | Funders | Partners



SARChI Chair in Paediatric TB (Hesseling)



Department  
for International  
Development



National  
Research  
Foundation



Funded by Evidence for HIV Prevention in Southern Africa (EHPSA), a DFID programme managed by Mott MacDonald.



## APPENDIX I. RESEARCH OUTPUTS – PEER-REVIEWED SCIENTIFIC PUBLICATIONS

DTTC Publications January 2019 – December 2019

### Manuscripts

1. Allwood B, **van der Zalm M**, Makanda G, Mortimer K, on behalf of the Steering Committee of the 1st International Post-Tuberculosis Symposium\*. The long shadow post-tuberculosis: “When we started TB treatment, no-one told us that it would never leave us.” *Lancet Infectious diseases*. *Lancet Infect Dis*. 2019 Nov;19(11):1170-1171. PMID: 31657778. \*Andre F.S. Amaral, Uzochukwu Egere, Denise Evans, Diane Gray, **Graeme Hoddinott**, Olenalvanova, Rupert Jones, **Florian M. Marx**, Jamilah Meghji, Stellah Mpagama, Sanne van Kampen, Andrea Rachow, Ingrid Schoeman, Cari Stek, Dalene von Delft, Naomi Walker, and Robert Wallis.
2. Basu Roy R, Whittaker E, **Seddon JA**, Kampmann B. Tuberculosis susceptibility and protection in children. *Lancet Infect Dis* 2019; 19: e96-e108. PMID: 30322790.
3. **Bock P**, Gunst C, Maschilla L, Holtman R, Grobbelaar N, **Wademan D**, **Dunbar R**, Fatti G, Kruger J, Ford N, **Hoddinott G**, **Meehan SA**. Retention in care and factors critical for effectively implementing antiretroviral adherence clubs in a rural district in South Africa. *J Int AIDS Soc*. 2019 Oct;22(10):e25396. PubMed PMID: 31588668.
4. **Bock P**, **Nel K**, Fatti G, **Sloot R**, Ford N, Voget J, Gunst C, Grobbelaar N, Louis F, Floyd S, Hayes R, Ayles H, **Beyers N**, Fidler S; HPTN 071 (PopART) Team. Renal dysfunction by baseline CD4 cell count in a cohort of adults starting antiretroviral treatment regardless of CD4 count in the HIV Prevention Trials Network 071 [HPTN 071; Population Effect of Antiretroviral Therapy to Reduce HIV Transmission (PopART)] study in South Africa. *HIV Med*. 2019 Apr 8. PMID: 30963667.
5. Bond V, Ngwenya F, **Viljoen L**, Gumede D, Bwalya C, **Mantantana J**, **Hoddinott G**, Dodd PJ, Ayles H, Simwanga M, Wallman S, Seeley J. Value and limitations of Broad Brush Surveys used in community-randomized trials in Southern Africa. *Qualitative Health Research* 2019; 29(5):700-718. PMID: 30556470. PMCID: PMC6533803.
6. **Bond V**, Nomsenge S, Mwamba M, Ziba D, Birch A, **Mubekapi-Musadaidzwa C**, **Vanqa N**, **Viljoen L**, **Pliakas T**, Ayles H, Hargreaves JR, **Hoddinott G**, Stangl A, Seeley J. "Being seen" at the clinic: Zambian and South African health worker reflections on the relationship between health facility spatial organisation and items and HIV stigma in 21 health facilities, the HPTN 071 (PopART) study. *Health & Place*. 2019; **55**:87-99. PMID: 30528346. PMCID: PMC6358039.
7. Chiang SS, Park S, White E, Cruz AT, Del Castillo H, Canales P, Friedman JF, Lecca L, Becerra MC, **Seddon JA**. Changes in weight-for-age z-score predict effectiveness of childhood tuberculosis therapy. *J Ped Infect Dis* 2019. PMID: 30715497.
8. Christian C, Burger, C., **Claassens M**, Bond V, and Burger R. 2019. Patient predictors of health-seeking behaviour for persons coughing for more than two weeks in high-burden tuberculosis communities: the case of the Western Cape, South Africa. *BMC health services research*, 19(1), p.160. PMID: 30866926
9. Crawford FW, **Marx FM**, Zelner J, Cohen T. Transmission modelling with regression adjustment for analyzing household-based studies of infectious disease: application to tuberculosis. *Epidemiology*. 2019 Nov 14. PMID: 31764276.
10. Dheda K, Gumbo T, Maartens G, **Dooley KE**, Murray M, Furin J, Nardell EA, Warren RM. The Lancet Respiratory Medicine Commission: 2019. Update: epidemiology, pathogenesis, transmission,

- diagnosis, and management of multidrug-resistant and incurable tuberculosis. *Lancet Respir Med*. 2019 Sep;7(9):820-826. PMID: 31486393.
11. Dippenaar A, De Vos M, **Marx FM**, Adroub SA, van Helden PD, Pain A, Sampson SL, Warren RM. Whole genome sequencing provides additional insights into recurrent tuberculosis classified as endogenous reactivation by IS6110 DNA fingerprinting. *Infection, genetics and evolution: journal of molecular epidemiology and evolutionary genetics in infectious diseases*. 2019:103948. Epub 2019/07/06. PubMed PMID: 31276801.
  12. **du Preez K, Schaaf HS, Dunbar R**, Swartz A, Naidoo P, **Hesseling AC**. A simple intervention can close the hospital-reporting gap for childhood tuberculosis in South Africa. *Public Health Action [Accepted for publication]*
  13. **du Preez K, Seddon JA, Schaaf HS, Hesseling AC**, Starke JR, **Osman M**, Lombard CJ, Solomons R. Global shortages of BCG vaccine and tuberculous meningitis in children. *Lancet Glob Health*. 2019 Jan;7(1):e28-e29. PMID: 30554756.
  14. Fatti G, Grimwood A, Nachega JB, Nelson JA, LaSorda K, van Zyl G, Grobbelaar N, Ayles H, Hayes R, **Beyers N**, Fidler S, **Bock P**, on behalf of the HPTN 071 (PopART) study team. Better Virological Outcomes amongst People Living with HIV Initiating Early Antiretroviral Treatment (CD4 counts  $\geq$  500 cells/microL) in the HPTN 071 (PopART) Trial in South Africa. *Clin Infect Dis*. 2019 May; doi: 10.1093/cid/ciz214. PMID: 30877753.
  15. Fatti G, Shaikh N, **Bock P**, Nachega JB, Grimwood A. Letter to the Editor. South African National Adherence Guidelines: Need for Revision? *Tropical Medicine International Health*. First published. 5 Aug 2019. PMID:31381230.
  16. Fuente-Soro L, Iniesta C, **López-Varela E**, Cuna M, Anselmo R, Maixenchs M, Luis Bernado E, Augusto O, Gonzalez R, Munguambe K, Nanche D. Tipping the balance towards long-term retention in the HIV care cascade: a mixed methods study in Southern Mozambique. *PLoS one*, August 2019. PMID: 31560689. PMCID: PMC6764678.
  17. **Garcia-Prats AJ, Schaaf HS, Draper HR**, Garcia-Cremades M, **Winckler J**, Wiesner L, **Hesseling AC**, Savic RM. Pharmacokinetics, optimal dosing, and safety of linezolid in children with multidrug-resistant tuberculosis: Combined data from two prospective observational studies. *PLoS Med*. 2019 Apr 30;16(4):e1002789. doi: 10.1371/journal.pmed.1002789. eCollection 2019 Apr. PMID: 31039153.
  18. **Garcia-Prats AJ, Purchase SE, Osman M, Draper HR, Schaaf HS**, Wiesner L, Denti P, **Hesseling AC**. Pharmacokinetics, Safety, and Dosing of Novel Pediatric Levofloxacin Dispersible Tablets in Children with Multidrug-Resistant Tuberculosis Exposure. *Antimicrob Agents Chemother*. 2019 Mar 27;63(4). pii: e01865-18. doi: 10.1128/AAC.01865-18. Print 2019 Apr. PMID: 30670421.
  19. Gröschel MI, **Seddon JA**, Prabowo SA, Migliori GB, Graham SM, van den Boom M, Dara M. European guidance on drug-resistant tuberculosis in children and adults. *Lancet Child Adol Health* 2019. *Accepted for publication*.
  20. Gupta A, Swindells S, Kim S, Hughes MD, Naini L, Wu X, Dawson R, Mave V, Sanchez J, Mendoza A, Gonzales P, Kumarasamy N, Comins K, Conradie F, Shenje J, Fontain SN, **Garcia-Prats A**, Asmelash A, Nedsuwan S, Mohapi L, Lalloo UG, Ferreira ACG, Mugah C, Harrington M, Jones L, Cox S, Smith B, Shah NS, **Hesseling AC**, Churchyard G; ACTG 5300/IMPAACT I2003 PHOENIX Feasibility study team. Feasibility of identifying household contacts of Rifampin- and multidrug-resistant tuberculosis cases at high risk of progression to tuberculosis disease. *Clin Infect Dis*. 2019 Mar 28. pii: ciz235. doi: 10.1093/cid/ciz235. [Epub ahead of print] PubMed PMID: 30942853.
  21. Gupta A, Hughes MD, **Garcia-Prats AJ**, McIntire K, **Hesseling AC**. 2019. Inclusion of key populations in clinical trials of new antituberculosis treatments: Current barriers and recommendations for

- pregnant and lactating women, children, and HIV-infected persons. *PLoS Med* 16(8): e1002882. PMID: 31415563.
22. Gupta A, Montepiedra G, Aaron L, Theron GB, McCarthy K, Bradford S, Chipato T, Vhembo T, Stranix-Chibanda L, Onyango-Makumbi C, Masheto G, Violari A, **Hesseling AC**, Shin K, Zimmer B, Costello D, Sterling TR, Chakhtoura N, Jean-Philippe P, Weinberg A; IMPAACT P1078 TB APPRISE Study Team. Isoniazid preventive therapy in HIV-Infected pregnant and postpartum women. *New England Journal of Medicine*. 2019; **381**:1333-1346. PMID: 31577875.
  23. Hayes RJ, Donnell D, Floyd S, **Mandla N**, Bwalya J, Sabapathy K, **Yang B**, Phiri M, Schaap A, Eshleman SH, Piwowar-Manning E, Kosloff B, James A, Skalland T, Wilson E, Lynda Emel L, Macleod D, **Dunbar R**, Simwanga M, **Makola N**, Bond V, **Hoddinott G**, Moore A, Griffith S, Sista ND, Vermund SH, El-Sadr W, Burns DN, Hargreaves JR, Hauck K, Fraser C, Shanaube K, **Bock P**, **Beyers N**, Ayles H, and Fidler S for the HPTN 071 (PopART) Study Team. 2019. Effect of Universal Testing and Treatment on HIV Incidence — HPTN 071 (PopART); July 18, 2019, *N Engl J Med* 2019; 381:207-218, DOI: 0.1056/NEJMoa1814556. PMID: 31314965.
  24. **Hughes J**, Reuter A, Chabalala B, Isaakidis P, Cox H, Mohr E. Adverse events among people on Delamanid for rifampicin-resistant tuberculosis in a high HIV prevalence setting. *The International Journal of Tuberculosis and Lung Disease*, Volume 23, Number 9, 1 September 2019, pp. 1017-1023(7). PubMed PMID: 31615610.
  25. Keshavjee S, Amanullah F, Cattamanchi A, Dobos K, Fox G, Gendelman H, Gordon R, **Hesseling A**, Hoi LV, Kampmann B, Kana B, Khuller G, Lewinsohn D, Lewinsohn D, Lin L, Lu LL, Maartens G, Owen A, Protopopova M, Rengarajan J, Rubin E, Salgame P, Schurr E, **Seddon JA**, Swindells S, Tobin D, Udawadia Z, Walzl G, Srinivasan S, Rustomjee R, Nahid P. Extinguishing the seedbed of tuberculosis: critical issues for research, diagnosis and treatment of tuberculosis infection. *Am J Resp Crit Care Med* 2019; 199: 564-571. *Accepted for publication*.
  26. Loveday M, Reuter A, Furin J, **Seddon JA**, Cox H. The STREAM Trial: missed opportunities and lessons for future clinical trials. *Lancet Infect Dis* 2019; 19: 351-353. PMID: 30910428.
  27. **Marx FM**, Cohen T, Lombard C, Hesseling AC, Dlamini SS, **Beyers N**, et al. Notification of relapse and other previously treated tuberculosis in the 52 health districts of South Africa. *Int J Tuberc Lung Dis*. 2019;23(8):891-9. Epub 2019/09/20. doi: 10.5588/ijtld.18.0609. PMID: 31533878.
  28. Meyers T, Samson P, Acosta EP, Moye J, Townley E, Bradford S, Marillo L, Denson K, Hovind L, Thucuma S, Teppler S, Mathiba SR, Masenya M, **Hesseling A**, Cotton MF, and Krogstad P. Pharmacokinetics and safety of a raltegravir containing regimen in HIV-infected children aged 2 to 12 years on rifampicin for tuberculosis. *AIDS* 2019. PMID: 31689263.
  29. Mishra H, Reeve BWP, Palmer Z, Caldwell J, Dolby T, Naidoo CC, Jackson JG, Schumacher SG, Denkinger CM, Diacon AH, van Helden PD, **Marx FM**, Warren RM, Theron G. Xpert Ultra and Xpert MTB/RIF for tuberculosis diagnosis in an HIV-endemic setting with a high burden of previous tuberculosis: a two-cohort diagnostic accuracy study. *Lancet Resp Med*. *Accepted for publication*.
  30. Mohiyuddin T, **Seddon JA**, Thomas L, Lalor M. The changing landscape of childhood tuberculosis in the United Kingdom: a retrospective cohort (2000 to 2015). *Ped Infect Dis J* 2019; 38: 470-475. PMID: 30256311.
  31. Mohr-Holland EK, Apolisi I, Reuter A, de Azevedo V, Hill JS, Matthee S, **Seddon JA**, Isaakidis P, Furin J, Triviño-Durán L. Barriers and solutions to finding Rifampicin-Resistant tuberculosis cases in older children and adolescents. *Pub Health Action Public Health Action*, 2019; 9(4), pp.174-176.

32. **Myburgh H**, Peters R, Hurter T, Grobbelaar, CJ, **Hoddinott G**. Transition to an in-facility electronic TB register: lessons from a South African pilot project. South African Journal of HIV Medicine. *Accepted for Publication*.
33. Nahid P, Mase SR, Migliori GB, Sotgiu G, Bothamley GH, Brozek JL, Cattamanchi A, Cegielski JP, Chen L, Daley CL, Dalton TL, Duarte R, Fregonese F, Horsburgh CR, Khan FA, ... **Schaaf HS**, Shah NS, Starke JR, Wilson JW, Wortham JM, Chorba T, and Seaworth B; on behalf of the American Thoracic Society, U.S. Centers for Disease Control and Prevention, European Respiratory Society, and Infectious Diseases Society of America. Treatment of drug-resistant tuberculosis: an official ATS/CDC/ERS/IDSA clinical practice guideline. Am J Respir Crit Care Med. 2019 Nov 15;200(10):e93-e142. PMID: 31729908. PMCID: PMC6857485
34. **Osman M**, Harausz EP, **Garcia-Prats, AJ**, **Schaaf HS**, Moore BK, Hicks RM, Achar J, Amanullah F, Barry P, Becerra M, Chiotan DI, Drobac PC, Flood J, Furin J, Gegia M, Isaakidis, P, Mariandyshev, A, Ozere, I, Shah NS, Skrahina A, Yablokova E, **Seddon JA**, **Hesseling AC**, Collaborative Group for Meta-Analysis of Paediatric Individual Patient Data in MDR TB. (2019). Treatment Outcomes in Global Systematic Review and Patient Meta-Analysis of Children with Extensively Drug-Resistant Tuberculosis. Emerging infectious diseases, 25(3), 441–450. doi:10.3201/eid2503.180852 PMID: 31729908. PMCID: PMC6857485.
35. **Osman M**, Welte A, **Dunbar R**, **Brown R**, **Hoddinott G**, **Hesseling AC** and **Marx FM**. 2019. Morbidity and mortality up to 5 years post tuberculosis treatment in South Africa: A pilot study. Int J Infect Dis 85: 57-63. PMID: 31132472.
36. **Purchase SE**, **Garcia-Prats AJ**, **De Koker P**, **Draper H**, **Seddon JA**, **Schaaf HS**, **Hesseling AC**. Acceptability of a novel levofloxacin dispersible tablet formulation in young children exposed to multidrug-resistant tuberculosis. Ped Infect Dis J 2019; 38: 608-610. PMID: 30550511.
37. Radtke KK, **Dooley KE**, Dodd PJ, **Garcia-Prats AJ**, McKenna L, **Hesseling AC**, Savic RM. Alternative dosing guidelines to improve outcomes in childhood tuberculosis: a mathematical modelling study. Lancet Child Adolesc Health 2019 Published Online July 16, 2019 [http://dx.doi.org/10.1016/S2352-4642\(19\)30196-8](http://dx.doi.org/10.1016/S2352-4642(19)30196-8) PMID: 31324596.
38. Reuter A, **Hughes J**, Furin J. Challenges and controversies in childhood tuberculosis. Lancet. 2019 Sep 14;394(10202):967-978. PMID: 31526740.
39. Reid M, Arinaminpathy N, Bloom A, Bloom B, Boehme C, Chaisson R, Chin D, Churchyard G, Cox H, Ditiu L, Dybul M, Farrar J, Fauci A, Fedaku E, Fujiwara P, Hallett T, Hanson C, Harrington M, Herbert N, Hopewell P, Ikeda C, Jamison D, Khan A, Koek I, Krishnan N, Motsoaledi A, Pai M, Raviglione M, Sharman A, Small P, Swaminathan S, Temesgen Z, Vassall A, Venkatesan N, van Weezenbeek K, Yamey G, Agins B, Alexandru S, Andrews J, Beyeler N, Bivol S, Brigden G, Cattamanchi, A, Cazabon D, Crudu V, Daftary A, Dewan P, Doepel L, Eisinger R, Fan V, Fewer S, Furin J, Goldhaber-Fiebert J, Gomez G, Graham S, Gupta D, Kamene M, Khaparde S, Mailu EW, Masini E, McHugh L, Mitchell E, Moon S, Osberg M, Pande T, Prince L, Rade K, Rao R, Remme M, **Seddon JA**, Selwyn C, Shete P, Stallworthy G, Vesga JF, Vilc V, Goosby E. 'Building a tuberculosis-free world': The Lancet Commission on tuberculosis. Lancet. 2019 Mar 30;393(10178):1331-1384. doi: 10.1016/S0140-6736(19)30024-8. Epub 2019 Mar 20. PMID: 30904263.
40. Sartoris G, **Seddon JA**, Rabie H, Nel ED, **Schaaf HS**. Abdominal tuberculosis in children: challenges, uncertainty and confusion. J Ped Infect Dis Soc 2019. PMID: 31909804.
41. **Schaaf HS**, Marais BJ. The Role of Xpert MTB/RIF Ultra in Diagnosing Pulmonary Tuberculosis in Children Am J Respir Crit Care Med. 2019 Aug 6. doi: 10.1164/rccm.201907-1492ED. [Epub ahead of print] PubMed: 31386819.

42. **Schaaf HS.** Diagnosis and Management of Multidrug-Resistant Tuberculosis in Children: A Practical Approach. *The Indian Journal of Pediatrics* (August 2019) 86(8):717-724; <https://doi.org/10.1007/s12098-018-02846-8>. PMID: 30656560.
43. **Seddon JA,** Whittaker EJ, Kampmann B, Lewinsohn D, **Osman M, Hesselning AC,** Amadulah F. The evolving research agenda for paediatric tuberculosis infection. *Lancet Infect Dis* 2019. PMID: 31221543.
44. **Seddon JA.** Thwaites GE. Tuberculous meningitis: new tools and new approaches required. Wellcome Open Research
45. Seeley J, Bond V, Yang B, Floyd S, Macleod D, **Viljoen L,** Phiri M, Simuyaba M, **Hoddinott G,** Shanaube K, Bwalya C, **De Villiers BL, Dunbar R, Bock PA,** Hayes R, Fidler S; HPTN 071 (PopART) study team. Understanding the time needed to link to care and start ART in seven HPTN 071 (PopART) study communities in Zambia and South Africa. *AIDS and Behavior* 2019; **23**:929-946. PMID: 30415432. PMCID: PMC6458981.
46. Snow KJ, Cruz AT, **Seddon JA,** Ferrand RA, Chiang SS, **Hughes J,** Kampmann B, Graham SM, Dodd PJ, Houben RMGJ, Denholm JT, Sawyer SM, Kranzer K. Adolescent tuberculosis: The missing middle. *Lancet Child and Adol Health*. [Epub ahead of print] *Trans R Soc Trop Med Hyg* 2019; **113**: S1–S98.
47. Suryavanshi N, Murrill M, Gupta A, Hughes M, **Hesselning A,** Kim S, Naini L, Jones L, Smith B, Gupte N, Dawson R, Mave V, Meshram S, Mendoza-Ticona A, Sanchez J, Kumarasamy N, Comins K, Conradie F, Shenje J, Nerette Fontain S, **Garcia-Prats A,** Asmelash A, Nedsuwan S, Mohapi L, Lalloo U, Ferreira ACG, Okeyo E, Swindells S, Churchyard G, Shah NS; A5300/I2003 Study Team. Willingness to take multidrug-resistant tuberculosis (MDR-TB) preventive therapy among adult and adolescent household contacts of MDR-TB index cases: An International Multi-Site Cross-Sectional Study. *Clin Infect Dis*. 2019 Mar 28. pii: ciz254. doi: 10.1093/cid/ciz254. [Epub ahead of print] PMID: 30919881.
48. Thomas R, Friebel R, Barker K, Mwenge L, Kanema S, **Vanqa N, Harper A, Bell-Mandla N,** Smith PC, Floyd S, **Bock P,** Ayles H, Fidler S, Hayes R, Hauck K; HPTN 071 (PopART) Study Team. Work and home productivity of people living with HIV in Zambia and South Africa. *AIDS*. 2019 May 1;33(6):1063-1071. PMID: 30946160.
49. van der Heijden YF, **Hughes J,** Dowdy DW, Streicher E, Chihota V, Jacobson KR, Warren R, Theron G. Overcoming limitations of tuberculosis information systems: researcher and clinician perspectives. *Public Health Action*, Volume 9, Number 3, 1 September 2019, pp. 120-127(8). PMID: 31803584. PMCID: PMC6827492.
50. Vanker A, Nduru PM, Barnett W, Dube FS, Sly PD, **Gie RP,** Nicol MP and Zar HJ. (2019). Indoor air pollution and tobacco smoke exposure: impact on nasopharyngeal bacterial carriage in mothers and infants in an African birth cohort study. *ERJ open research*, 5(1), pp.00052-2018. eCollection 2019 Feb. Pubmed PMID: 30740462
51. **Wademan DT, Busakwe L, Nicholson TJ, van der Zalm M, Palmer M, Workman J,** Turkova, A, Crook, A.M, Thomason, MJ, Gibb, DM, Seeley, J, **Hesselning A, and Hoddinott G** on behalf of the SHINE trial team. Acceptability of a first-line antituberculosis formulation for children: qualitative data from the SHINE trial. *The International Journal of Tuberculosis and Lung Disease*, 23(12), pp.1263-1268.
52. **Walters E, van der Zalm MM, Demers AM,** Whitelaw A, **Palmer M, Bosch C, Draper HR, Schaaf HS, Goussard P,** Lombard CJ, **Gie RP, Hesselning AC.** Specimen Pooling as a Diagnostic Strategy for

Microbiologic Confirmation in Children with Intrathoracic Tuberculosis. *Pediatr Infect Dis J.* 2019 Jun;38(6):e128-e131. PMID: 30418355.

53. Whittaker EJ, **Lopez E**, Broderick C, **Seddon JA**. Examining the complex relationship between tuberculosis and other infectious diseases in children: A review. *Frontiers in pediatrics*, 7, p.233. PMID: 31294001 PMCID: PMC6603259,
54. **Zimri K, Casper R., Hoddinott G, Schaaf HS, Garcia-Prats AJ, Rose PC, Hesselring AC, and Viljoen L.** 2019. A novel approach for eliciting adolescent MDR-TB treatment tolerability: qualitative data from South Africa. *International journal of Tuberculosis and Lung disease.* *Accepted for publication.*

#### **Book Chapters**

1. Whittaker E, Welch S, Cohen J, **Seddon JA**. Tuberculosis in Children and Adolescents. In: *Tuberculosis in Clinical Practice.* Ed. Onn Min Kon. Springer.



**APPENDIX II: STUDENTS AT THE DESMOND TUTU TB CENTRE DURING 2019**

<b>DTTC or DTTC-supported Students Registered (2019)</b>				
<b>Currently Registered Trainees: Master's Degree</b>				
<b>Name of trainee</b>	<b>Current position</b>	<b>Degree</b>	<b>Supervisor</b>	<b>Research Topic</b>
Jabulile Mantantana, BPsych	Community Engagement, Recruitment, and Retention Officer	MPhil Transdisciplinary Public Health and development studies (SU)	Graeme Hoddinott	Continuity of ART for people who experience incarceration
Nosivuyile Vanqa	Social Science Research Officer	MPhil Transdisciplinary Public Health and development studies (SU)	Lindsey Reynolds	Traditional healers' perspectives on their roles supporting scale-up of HIV testing and treatment
Nelis Grobbelaar	Programme Director (ANOVA Health)	MPhil Transdisciplinary Public Health and development studies (SU)	Graeme Hoddinott	Integrating change to universal HIV-testing and ART regardless of CD4-count into routine health services
Melissa Nel	Social Science Research Apprentice	MPhil Transdisciplinary Public Health and development studies (SU)	Graeme Hoddinott Rory Dunbar	A scale for rapidly ascribing socio-economic status estimates to neighbourhoods using observational and participatory research techniques.
Leletu Busakwe	Student	MPhil Transdisciplinary Public Health and development studies (SU)	Graeme Hoddinott	The experiences of paediatric MDR-TB patients' (14-17 years old) hospitalised for treatment in terms of adolescent social and biological development
Abenathi Mcinziba	Social Science Research Assistant	MPhil Transdisciplinary Public Health and development studies (SU)	Lario Viljoen Peter Bock	Household level management of ART adherence choices in the context of socio-economic pressures

Stephanie Jacobs	Social Science Research Assistant	MPhil Transdisciplinary Public Health and development studies (SU)	Graeme Hoddinott Dillon Wademan	Families' affected by MDR-TB's understanding of disease and treatment
Chanda Mwamba	Student	MPhil Transdisciplinary Public Health and development studies (SU)	Graeme Hoddinott	Young women living with HIV in Zambia's motivators and experiences of status disclosure to intimate partners
Nozizwe Makola	Community Liaison Officer	MPhil in Applied Ethics specializing in Bioethics (SU)	Nicola Barsdorf Graeme Hoddinott	The role of Community Advisory Boards in protecting human subjects in large-scale community-randomised control trials – a case study of HPTN 071 (PopART)
Christopher Mahwire, MD	Medical Officer, DOH	MSc Epid (SU)	Pren Naidoo	Has the use of Xpert MTB/RIF diagnostic assay improved MDR-TB treatment success rates in KwaZulu Natal?
Marcel Kanyinda Kitnge	Student	MSc Epid (SU)	Pren Naidoo	Did the introduction of an Xpert MTB/RIF-based algorithm increase the proportion of bacteriologically confirmed PTB cases in Cape Town: An Interrupted Time Series Design?"
Lena Ronge, MD	Research Medical Officer Consultant	MSc Epid (SU)	Anneke Hesseling	Operational implementation of treatment of MDR-TB prevention in a community based clinical trial
Khanya Mama		MCom (SU)	Ronelle Burger Graeme Hoddinott	TB patients with confirmed diagnoses who decline/delay taking up treatment – exploring why
Bianca Hamman	Medical microbiology	MSc (SU)	Mae Newton-Foot Marieke vd Zalm	The role of respiratory co-infections and the microbiome in the clinical presentation and response to treatment in South African children with suspected TB
Gwyneth Hendricks	Communications Officer	MTECH: Public Relations Management		

Tashlyn Herandien	Social Science	MA Sociology (SU)	Efua Prah Hanlie Myburgh	Exploring intimacy and the usage of anti-retroviral treatment (ART) in heterosexual relationships of individuals living with HIV.
Bukeka Sawula	Student	MA Psychology (SU)	Barend De Villiers	A qualitative exploration into young mother's experiences of raising their children while they are living with HIV
Michaile Anthony	NRF Intern	MA Psychology (UWC)	M.G.Andipatin	A photo voice study: Exploring the maternal embodied experience of women experiencing a high-risk pregnancy
Dzunisani Baloyi	NRF Intern	MA Psychology (NWU)	MN Van Aardt	Exploring relationships between members of different generations: An older person's perspective.
Joanie Duvenhage	Dep Paediatrics	MMed	Simon Schaaf Anneke Hesseling	Incidence causes and outcome of management in cases of hepatocellular injury in paediatric patients on multidrug-resistant tuberculosis therapy

**Currently registered PhD's (10)**

<b>Name of trainee</b>	<b>Current position</b>	<b>Degree</b>	<b>Supervisor</b>	<b>Research Topic</b>
Nomtha Mandla, Physio	Project Manager: PopART	PHD (SU)	Lungiswa Nkonki Peter Bock	Recruitment, participation and retention of research participants in the HPTN 071 Population Cohort, South Africa.
Lario Viljoen, MA	Social Science Researcher	PhD (SU)	Lindsey Reynolds	Young women's sexual decision-making in the context of earlier ART-access
Karen du Preez, MD, MSc	Research Medical Officer	PhD (SU)	Anneke Hesseling Simon Schaaf Pren Naidoo	Complementary surveillance strategies and interventions to inform a tuberculosis care cascade for children
Laing de Villiers	Social Science Research Officer	PhD (SU)	Leslie Swartz Graeme Hoddinott	Identity fluidity on the margins of Cape Winelands communities
Dillon Wademan	Social Science Research Officer	PhD (SU)	Graeme Hoddinott Lindsey Reynolds	Family chronicity and intergenerational syndemics in the chronic management of TB, HIV, and diabetes
Hanlie Myburgh, MA	Social Science Researcher	PhD (UVA)	Ria Reis Lindsey Reynolds	The state and the citizen in the scale-up of HIV services in South Africa

Muhammad Osman, MD, Msc	Research Medical Officer	PhD (SU)	Anneke Hesseling Pren Naidoo Alex Welte	TB-associated mortality in South Africa: longitudinal trends and the impact of health system interventions
Louvina van der Laan, MD	Research Medical Officer	PhD (UCT)	Paolo Denti Anthony Garcia-Prats	Pharmacometric modelling as a tool to optimise TB Treatment in children
Rozanne Casper	Social Science Research Officer	PhD (RU)	Catriona Macleod Graeme Hoddinott	Young women's negotiation of gender identity in South Africa
Angelique Thomas	Social Science Research Officer	PhD (UCT)	Fiona Ross Lindsey Reynolds Graeme Hoddinott	Women who sell sex's management of intimacy
<b>Post docs current</b>				
<b>Name of trainee</b>		<b>Degree</b>	<b>Supervisor</b>	<b>Research Topic</b>
Marieke van der Zalm	Paediatrician	Postdoc (SU)	Anneke Hesseling	Lung function and respiratory pathogens in children with suspected TB
Rosa Sloot	Biostatistician	Postdoc (SU)	Pren Naidoo	Epidemiology- HPTN071 (PopART)

## APPENDIX III: MEDIA INTERACTION (TELEVISION, VIDEO, RADIO, PRINTED MEDIA)

The DTTC has maintained an active profile in the media, both in print and radio in 2019.

### Online and print media

The HPTN 071 (PopART) trial:

1. Times Live: <https://www.timeslive.co.za/sunday-times/lifestyle/health-and-sex/2019-03-05-new-hiv-infections-can-be-prevented-million-people-trial-shows/>
2. AllAfrica.com: <https://allafrica.com/stories/201903050002.html>
3. Independent Online: <https://www.iol.co.za/capetimes/news/tutus-hiv-trials-can-cut-the-rate-by-30-19681955>. This article was also the front-page lead in the Independent Group's print version, The Cape Times (Western Cape daily newspaper and online). A version of this article also featured in The Herald newspaper in the Eastern Cape province and in the Cape Argus in Cape Town
4. Eyewitness News: <https://ewn.co.za/2019/03/08/community-based-hiv-prevention-strategy-can-reduce-new-infections-study>
5. Sowetan Live: <https://www.sowetanlive.co.za/news/2019-03-05-new-hiv-infections-can-be-prevented-million-people-trial-shows/>
6. BizCommunity.com: <https://www.bizcommunity.com/Article/196/149/188120.html>

The BENEFIT Kids Project:

1. Cape Argus: SU signs grant agreement to combat children's TB. 23 October 2019.
2. Cape Times: R280m funding for Stellenbosch University to tackle child-friendly TB treatment. 23 October 2019.
3. [www.iol.co.za](http://www.iol.co.za). SU signs grant agreement to combat children's TB. 27 October 2019. Available: <https://www.iol.co.za/capeargus/news/su-signs-grant-agreement-to-combat-childrens-tb-35744110>
4. [www.medicalacademic.co.za](http://www.medicalacademic.co.za). Stellenbosch University develops safer treatment for kids with MDR-TB. 30 October 2019. Available: <https://www.medicalacademic.co.za/pulmonology/stellenbosch-university-develops-safer-treatment-for-kids-with-mdr-tb/>
5. Imperial College website: African Research Leader Grant Awarded. 10 December 2019. Available: <https://www.imperial.ac.uk/news/194327/795k-award-supports-african-research-partnership/>

### Broadcast (radio and television)

The HPTN 071 (PopART) trial:

Co-investigator in South Africa, Peter Bock, from the Desmond Tutu TB Centre, was interviewed on the following TV and radio shows.

1. Voice of the Cape– Current Affairs Show. 6 March 2019.
2. Cape Talk. John Maytham Show. 7 March 2019.
3. Eye Witness News. Radio bulletin. 8 March 2019.
4. eNCA (Television news channel). 9 March 2019.

Paediatric and child TB specialist, Dr James Seddon and former MDR-TB research participant and survivor, 14-year-old, Ciara Goslett, were interviewed on RX Radio for the World TB Day and Human Rights programme:

1. Red Cross (RX) Children's Hospital Radio. 30 March 2019: Available: <https://rxradio1.podbean.com/e/talitha-interviews-dr-james-seddon-and-ciara-goslet-30-march-2019/>

BENEFIT Kids Project:

Prof Anneke Hesseling, director of the DTTC, was interviewed on several radio stations following the announcement of the BENEFIT Kids Project grant.

1. Voice of the Cape: Drive Time Presenter. Stellenbosch University has signed a new grant agreement with Unitaid, an organisation that invests in innovations to prevent TB. 29 October 2019. Available: <https://iono.fm/e/764126>.
2. Radio Tygerberg. Child TB will soon be better treated than in the past, this thanks to a research grant of over R280m to the University of Stellenbosch by Unitaid. 25 October 2019.
3. Cape Talk. Multi-million-dollar grant towards TB research signed off. 5 November 2019. Available: <http://www.capetalk.co.za/podcasts/127/afternoons-with-pippa-hudson/261424/science-tech-a-multi-million-dollar-grant-towards-tb-research-signed-off>

**University media coverage:**

1. The DTTC and the HPTN 071 (PopART) study in Stellenbosch University Media: *Researchers return to communities to deliver results of landmark HIV prevention study*. 7 May 2019. Available: <http://www.sun.ac.za/english/Lists/news/DispForm.aspx?ID=6405>