60th Annual Academic Day
11 August 2016

60ste Akademiese Jaardag
11 Augustus 2016

PROGRAMME & ABSTRACTS
PROGRAM & ABSTRAKTE

FOREWORD

The Faculty of Medicine and Health Sciences of Stellenbosch University has a long and proud history of medical and health sciences research which stretches over a period of 60 years. From humble beginnings, the Faculty has grown to be one of the top health sciences faculties on the African continent, a leading research-intensive institution with extensive international collaborations, in addition to strong national and local partnerships. Our vision is to advance health and equality in South Africa and beyond, and we do this, *inter alia*, with our research, through the discovery, sharing and translation of knowledge that will promote health and development. The Faculty's strategic research focus areas (namely Infectious Diseases, Non-communicable Diseases, Mental Health and Neurosciences, Violence, Injuries, Trauma and Rehabilitation, Maternal and Child Health, and Health Systems Strengthening) are uniquely aligned to both local and international health priorities and through these themes and the associated research groupings, units, centres and institutes within our Faculty, we aim to address the major health challenges facing the African continent. This ensures that the Faculty's research activities make a difference to the health and wellness of our society as a whole.

The Annual Academic Day, which showcases and celebrates our Faculty's on-going research achievements, remains a highlight of our academic calendar, and is organized around our research focus areas to highlight the contributions that we make to each area. This year's Annual Academic Day is a very special event for us, being our 60th annual research day and coinciding with the 60th birthday celebrations of the Faculty. When we look back over the past 60 years it is clear that every person who feels part of this institution can be proud of what has been achieved in terms of research and innovation. The Faculty's research enterprise has never been stronger, with amongst others record numbers of publications, postdoctoral fellows and PhD students and research income which has increased more than 800% over the last 10 years. Our researchers and research centres are internationally recognized and continue to attract highly prestigious awards. We are proud of our achievements and are happy that we can celebrate such a big milestone on this day by presenting some of our top recent research outputs in seven different tracks in oral and poster format.

This 60th Annual Academic Day is a time for reflection on what we have achieved, our tremendous growth and output, the major contribution that our research has made over many years to science and society, and the impact that it has on governmental, societal, economic and environmental issues. Louis Pasteur is quoted as saying "*science knows no country, because knowledge belongs to humanity and is the torch which illuminates the world"*, and we feel strongly that our research should be shared with the world as it belongs to humanity. This event provides an opportunity to do just that, but also to acknowledge the commitment and hard work of our researchers and support staff, whose efforts are indispensable to the success of our research enterprise.

On behalf of the FMHS, I would like to congratulate everyone whose work has been selected for presentation this year. I also wish to express the Faculty's sincere appreciation to the organising committee who has worked tirelessly to ensure the success of the 2016 Annual Academic Day. I invite you all to share and enjoy this special event with us.

Professor Nico C Gey van Pittius
VICE DEAN: RESEARCH

VOORWOORD

Die Fakulteit Geneeskunde en Gesondheidswetenskappe van die Universiteit Stellenbosch het 'n lang en trotse geskiedenis van geneeskunde en gesondheidswetenskappe navorsing wat strek oor 'n tydperk van 60 jaar. Van 'n nederige begin, het die Fakulteit gegroei tot een van die top gesondheidswetenskappe fakulteite op die Afrika-kontinent, 'n leidende navorsingsintensiewe instelling met uitgebreide internasionale samewerking, bykomend tot sterk nasionale en plaaslike vennootskappe. Ons visie is om gesondheid en gelykheid te bevorder in Suid-Afrika en elders, en ons doen dit, onder andere, met ons navorsing, deur middel van die ontdekking, deel en oordrag van kennis wat gesondheid en ontwikkeling bevorder. Die Fakulteit se strategiese navorsingsfokusareas (nl Infeksiesiektes, Nie-oordraagbare Siektes, Geestesgesondheid en Neurowetenskappe, Geweld, Beserings, Trauma en Rehabilitasie, Moeder- en Kindergesondheid, en Gesondheidsisteme Versterking) is uniek belyn met beide plaaslike en internasionale gesondheidsprioriteite en deur middel van hierdie temas en die gepaardgaande navorsingsgroeperings, eenhede, sentrums en instellings binne ons Fakulteit, streef ons daarna om die belangrike gesondheidsuitdagings vir die Afrika-kontinent aan te spreek. Dit verseker dat die Fakulteit se navorsingsaktiwiteite 'n verskil maak aan die gesondheid en welstand van ons samelewing as 'n geheel.

Die Akademiese Jaardag, wat ons Fakulteit se voortgesette navorsingsprestasies ten toon stel en vier, bly 'n hoogtepunt van ons akademiese kalender, en word georganiseer rondom ons navorsingsfokusareas om die bydraes wat ons maak in elke area na vore te bring. Vanjaar se Akademiese Jaardag is 'n baie spesiale geleentheid vir ons aangesien dit ons 60ste jaarlikse navorsingsdag is, wat saamval met die 60ste verjaardagvieringe van die Fakulteit. Wanneer ons terugkyk oor die afgelope 60 jaar is dit duidelik dat elke persoon wat deel voel van hierdie instelling trots kan wees op wat bereik is in terme van navorsing en innovasie. Die Fakulteit se navorsingsonderneming was nog nooit so sterk nie, met onder andere rekord getalle van publikasies, nadoktorale genote en PhD-studente en navorsingsinkomste wat meer as 800% oor die afgelope 10 jaar toegeneem het. Ons navorsers en navorsingsentrums word internasionaal erken en gaan voort om hoogs gesogte toekennings te trek. Ons is trots op ons prestasies en is bly dat ons so 'n groot mylpaal op hierdie dag kan vier deur die aanbieding van 'n paar van ons top onlangse navorsingsuitsette in sewe verskillende bane in mondelinge en plakkaat-formaat. Die 60ste Akademiese Jaardag is 'n tyd vir besinning oor wat ons bereik het, ons geweldige groei en uitsette, die groot bydrae wat ons navorsing oor baie jare tot die wetenskap en die samelewing gemaak het, en die impak daarvan op die regering, maatskaplike, ekonomiese en omgewingskwessies. Louis Pasteur is soos volg aangehaal "*wetenskap ken geen land, omdat kennis behoort aan die mensdom en dit die fakkel is wat die wêreld verlig*", en ons voel sterk daaroor dat ons navorsing moet gedeel word met die wêreld aangesien dit aan die mensdom behoort. Hierdie gebeurtenis bied nie net 'n geleentheid om dit te doen nie, maar ook om die toewyding en harde werk van ons navorsers en ondersteuningspersoneel, wie se pogings onontbeerlik is vir die sukses van ons navorsingsonderneming, te erken.

Namens die FGGW, wil ek graag almal wie se werk gekies is vir aanbieding vanjaar gelukwens. Ek wil ook graag die Fakulteit se opregte waardering uitspreek teenoor die reëlingskomitee wat onvermoeid gewerk het om die sukses van die 2016 Akademiese Jaardag te verseker. Ek nooi julle almal uit om hierdie spesiale geleentheid saam met ons te deel en te geniet.

Professor Nico C Gey van Pittius
VISEDEKAAN: NAVORSING

THE AAD 2016 ORGANISING COMMITTEE WOULD LIKE TO EXPRESS ITS SINCERE APPRECIATION TO THE FOLLOWING COMPANIES FOR THEIR PARTICIPATION AND FINANCIAL SUPPORT /
DIE AJD 2016 REËLINGSKOMITEE WIL GRAAG SY DANK EN WAARDERING UITSPREEK AAN DIE VOLGENDE MAATSKAPPYE VIR HULLE DEELNAME EN FINANSIËLE ONDERSTEUNING

DISCOVERY HEALTH

DUXAH PTY LTD

INQABA BIOTEC

MEDHOLD

MEDICAL PROTECTION SOCIETY

MSD

SANOFI PASTEUR

SIEMENS HEALTHCARE

WHITEHEAD SCIENTIFIC (PTY) LTD

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Anaesthesiology and Critical Care / Anestesiologie en Kritieke Sorg	Prof Wynand van der Merwe
Medical Imaging and Clinical Oncology / Mediese Beelding en Kliniese Onkologie	Dr Tony Serafin
Surgical Sciences / Chirurgiese Wetenskappe	Prof Robert P Lamberts, Dr Theresa Mann, Prof Ian Vlok

PROGRAMME OVERVIEW / PROGRAM OORSIG

60th ANNUAL ACADEMIC DAY 2016 / 60ste AKADEMIESE JAARDAG 2016

Thursday 11 August 2016 / Donderdag 11 Augustus 2016

Morning Parallel Sessions / Oggend Parallelle Sessies

08h20-11h45:	Health Systems Strengthening (Sessions 1 and 2)	Lecture Hall 4	p15
08h45-11h45:	Infectious Diseases (Sessions 1 and 2)	Lecture Hall 11	p19
08h45-11h45:	Violence, Injuries, Trauma and Rehabilitation (Sessions 1 and 2)	Lecture Hall 7	p27
08h45-11h45:	Non-communicable diseases (Sessions 1 and 2)	Main Lecture Hall	p30
11h00-11h45:	Mental Health and Neurosciences (Session 1)	JN de Villiers	p36
08h45-12h00:	Maternal and Child Health (Sessions 1 and 2)	Lecture Hall 12	p42

Please note there will be a Tea/Coffee and Poster Discussions break (in the Foyer between Lecture Hall 11 and 12) from 10h00-10h30 between Sessions 1 and 2 of the morning sessions

11h45-12h30: ***Lunch and Posters*** (Foyer between Lecture Hall 11 and 12)

Main Programme / Hoofprogram (Lecture Hall 11 / Voorlesingsaal 11)

Chair / Voorsitter: *Prof NC Gey van Pittius (Deputy Dean: Research)*

12h30-13h00: Dean's Address
Prof Jimmy Volmink (Dean, Faculty of Medicine and Health Sciences, Stellenbosch University)

13h00-13h15: Introduction of Guest Speaker:
Prof Jimmy Volmink

13h15-14h00: Guest Speaker (see page 8)
Prof Bongani Mayosi (Dean Designate: Faculty of Health Sciences, UCT)
Presentation title: *"60 Years of Health Research at Stellenbosch University: Profile and Impact"*

14h00-14h30: ***Tea/Coffee and Posters*** (Foyer between Lecture Hall 11 and 12)

Afternoon Parallel Sessions / Namiddag Parallelle Sessies

14h30-16h30:	Health Systems Strengthening (Session 3)	Lecture Hall 4	p16
14h30-16h30:	Infectious Diseases (Session 3)	Lecture Hall 11	p20
14h30-16h00:	Violence, Injuries, Trauma and Rehabilitation (Session 3)	Lecture Hall 7	p28
14h30-18h00:	Non-communicable diseases (Session 3 and 4)	Main Lecture Hall	p31
14h30-16h30:	Mental Health and Neurosciences (Session 2)	JN de Villiers	p37
14h30-17h30:	Perioperative Sciences (Session 1 and 2)	Lecture Hall 5	p40
14h30-17h30:	Maternal and Child Health (Sessions 3 and 4)	Lecture Hall 12	p43

Please note there will be a Tea/Coffee and Poster Discussions break (in the Foyer between Lecture Hall 11 and 12) from 16h30-16h45 before the late afternoon sessions.

State of the Art Presentations / Spiespuntvoordragte

10h30 - 11h00: State of the Art Lecture 1 – Health Systems Strengthening (Lecture Hall 4)
Prof Taryn Young (Centre for Evidence-Based Health Care)
Title: *Development of a best practice model for teaching and learning evidence-based health care at Stellenbosch University*

10h30 - 11h00: AJ Brink State of the Art Lecture 2 - Infectious Diseases (Lecture Hall 11)
Prof Paul van Helden (Division of Molecular Biology and Human Genetics)
Title: *The Changing Face of TB at SUN: Reflections of a Beginner*

10h30 - 11h00: State of the Art Lecture 3 - Violence, Injuries, Trauma and Rehabilitation (Lecture Hall 7)
Prof Quinette Louw (Division of Physiotherapy)
Title: *Beyond scientific to social impact.*

14h30 - 15h00: State of the Art Lecture 4 - Non-communicable Diseases (Main Lecture Hall)
Prof Soraya Bardien-Kruger (Division of Molecular Biology and Human Genetics)
Title: *The rise of non-communicable disorders in sub-Saharan Africa*

14h30 - 15h00: State of the Art Lecture 5 - Mental Health and Neurosciences (JN De Villiers)
Dr Felix Potocnik (Department of Psychiatry)
Title: *Travelling with dementia*

14h30 - 15h00: State of the Art Lecture 6 – Perioperative Sciences (Lecture Hall 5)
Prof Ian Vlok (Division of Neurosurgery)
Title: *Sunskill – the future of surgical simulation training?*

14h30 - 15h00: State of the Art Lecture 7 – Maternal and Child Health (Lecture Hall 12)
Dr Stefan Gebhardt (Department of Obstetrics and Gynaecology)
Title: Obstetric litigation in the Western Cape, South Africa: An analysis of public sector professional liability claims from 1995-2014

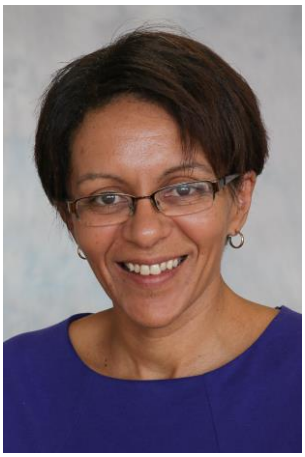
GUEST SPEAKER / GASSPREKER

PROF BONGANI MAYOSI

Prof Bongani Mayosi is a Professor of Medicine and Head of the Department of Medicine at Groote Schuur Hospital and University of Cape Town, and Dean Elect of the Faculty of Health Sciences of the University of Cape Town. Professor Mayosi is a National Research Foundation A-rated clinician scientist who conducts research on genetics of cardiovascular traits, treatment of tuberculous pericarditis, and prevention of rheumatic fever. He is the Chairman of the South African National Health Research Committee, President of the Pan-African Society of Cardiology (PASCAR), and Chairman of the African Advisory Committee on Health Research and Development of the World Health Organization – Africa Region. In November, 2009, President Jacob Zuma bestowed upon him South Africa's highest honour, the Order of Mapungubwe in Silver, for excellent contributions to medical science..

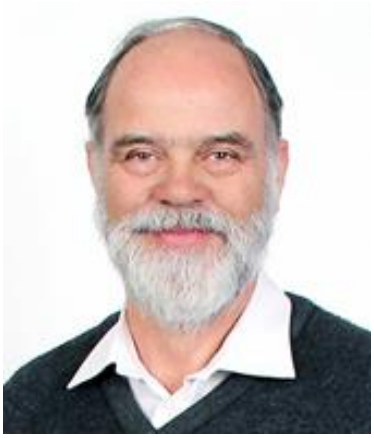
State of the Art Presenters / Spiespuntvoordrag Aanbieders

State of the Art Lecture 1
Prof Taryn Young (Centre for Evidence-Based Health Care)
Title: *Development of a best practice model for teaching and learning evidence-based health care at Stellenbosch University*



Prof Taryn Young is the Director of the Centre for Evidence-Based Health Care (CEBHC) at the Faculty of Medicine and Health Sciences, Stellenbosch University. As Director, she oversees research, facilitate learning and work on implementation and evaluation of knowledge translation strategies. She provides mentorship and methodological support to postgraduate students and researchers. As a strategic alliance partner, she works with initiatives which promote evidence-based practice and policy in Africa taking into account the unique attributes of the region and the relevance of proposed activities. She values strong working relationships, excellence, integrity and relevance.

AJ Brink State of the Art Lecture 2
Prof Paul van Helden (Division of Molecular Biology and Human Genetics)
Title: *The Changing Face of TB at SUN: Reflections of a Beginner*



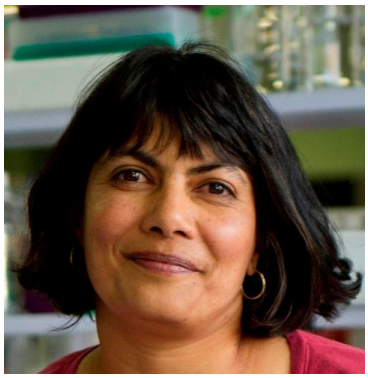
Prof Paul van Helden has been working with or for Stellenbosch University and the MRC since January 1979. In 1989 he changed his direction to TB. From a modest beginning in 1989, with one PhD student working on TB, the centre now has about 110 persons working on TB, which is its sole focus

at present. He believes that it is now a world-class research centre which has helped put South African research on the TB world map. This Centre at Stellenbosch University has been placed in the top 20 research institutions in TB research (http://sciencewatch.com/inter/ins/09/09Tubertop20/. Prof van Helden has been ranked 4th globally in terms of total impact for TB research, (http://sciencewatch.com/ana/st/tub/09julSTTubvanHel/). Prof van Helden enjoys interacting with and mentoring younger persons and students. The Centre has shown that one can use modern molecular biology in a developing country to good effect, particularly for diagnosis of drug resistant TB, and we paved the way for the introduction of such technologies, now being used in state diagnostic labs. Prof van Helden likes to stimulate work that will impact health care of humans and animals and enjoys seeing implementation of research findings.

State of the Art Lecture 3
Prof Quinette Louw (Division of Physiotherapy)
Title: *Beyond scientific to social impact.*

Prof Quinette Louw is a leading African researcher in evidence-based musculoskeletal health. Using a trans-disciplinary framework, she specifically explores how scientific and clinical evidence can be translated to optimise human functionality. In 2009, she founded the SU movement analysis laboratory which recently became the Human Movement Analysis, Central Analytical Facility. She has a BSc in physiotherapy from the University of the Western Cape and holds a masters and doctoral degree from the University of South Australia. Her research career started 11 years ago and her position as a research leader is recognised by her associate professorship in the Division of Physiotherapy and her NRF rating as an established researcher. She has successfully trained 70 postgraduate students and published around 100 publications to date.

State of the Art Lecture 4
Prof Soraya Bardien-Kruger (Division of Molecular Biology and Human Genetics)
Title: *The rise of non-communicable disorders in sub-Saharan Africa*



Prof. Soraya Bardien is currently employed as an Associate Professor in the Division of Molecular Biology and Human Genetics at Stellenbosch University. She obtained a PhD in human genetics from the University of Cape Town (UCT) and then went on to do postdoctoral fellowships at the University of the Western Cape, Stellenbosch University and UCT. Moreover, during her doctoral and postdoctoral studies she spent training visits at the Baylor College of Medicine in Houston, USA, the University of Texas Southwestern Medical Centre in Dallas, USA and the Institute of Ophthalmology in London, UK. She was appointed as a senior lecturer at Stellenbosch University in 2008, and shortly thereafter, she, together with Prof Jonathan Carr, started a project on the genetic aetiology of Parkinson's disease (PD) in South African patients. With the help of a research nurse Sr. Debbie Lombard, they have recruited and stored DNA samples for genetic studies from 1 733 individuals (512 South African PD probands, 451 family members and 770 controls) to date. Their work on the genetics and disease mechanisms underlying PD has been published in a number of local and international scientific journals. One of these articles highlights the lack of studies on the genetic causes of PD in sub-Saharan African countries. They have also been invited to write a chapter in the book entitled Parkinson's disease, 2nd edition, 2013 (Editors: Pfeiffer, Wszolek, and Ebadi).They have a number of collaborators around the world and their group is a member of a large international PD consortium called GEO-PD, and they will host the consortium meeting in Cape Town in 2018. Prof Bardien has been awarded a number of research grants for her work including a South Africa-France bilateral Protea Grant and more recently an NIH grant for a project entitled 'Capacity building in sub-Saharan Africa to conduct cutting-edge genetics research in Parkinson's disease'.

State of the Art Lecture 5
Dr Felix Potocnik (Department of Psychiatry)
Title: *Travelling with dementia*

After obtaining his medical degree at the University of the Witwatersrand in 1975, Dr Potocnik went to Natal for five years where he obtained his Diploma in Midwifery in 1978. Having completed stints in four of the "big five" medical specialties he migrated to the Western Cape, where he obtained his psychiatric qualification at the University of Cape Town in 1984. He started his career heading their Psychogeriatric Unit and continued in this position when he came across to the University of Stellenbosch in 1994. He currently heads the Psychogeriatric Unit of Tygerberg and Stikland Hospitals and is Programme Manager of the Old Age Psychiatry Portfolio for the Associated Psychiatric Hospitals, Provincial Government Western Cape and is also a lecturer in the Department of Psychiatry.

State of the Art Lecture 6
Prof Ian Vlok (Division of Neurosurgery)
Title: *Sunskill – the future of surgical simulation training?*

Prof Adriaan Johannes (Ian) Vlok is a neurosurgeon by training and hold the postgraduate degree MMed (Neurosurgery) from the University of Stellenbosch and is a fellow of the college of Neurosurgeon in South Africa (FC Neurosurgery). Prof Vlok also completed an internationally accredited fellowship in spinal surgery in the year 2009. He is currently the chief specialist at Tygerberg Academic Hospital and holds the academic rank of associate professor at the University of Stellenbosch. He is actively involved in neurosurgical and spinal training both nationally and internationally and currently serves on the executive committees of both the South African Neurosurgical Society as well as the South African Spine Society. He has a special interest in cranio-cervical junction and upper cervical spine pathology and has presented on these topics at several international meetings.

State of the Art Lecture 7
Dr Stefan Gebhardt (Department of Obstetrics and Gynaecology)
Title: *Obstetric litigation in the Western Cape, South Africa: An analysis of public sector professional liability claims from 1995-2014*

Dr Stefan Gebhardt is a specialist Obstetrician and Gynaecologist based at Tygerberg Hospital in Cape Town in the Western Cape Province of South Africa, where he heads the General Specialist O&G Platform at Tygerberg and in the Metro East health district. He is also a researcher and senior lecturer in the Department of Obstetrics and Gynaecology at Stellenbosch University, where his interest and research are involved with genetic aspects of early pregnancy disease, clinical governance in maternity services and health systems planning. Dr Gebhardt has a close working relationship with the Western Cape Department of Health where he is the obstetric chairperson of the provincial Clinical Governance Committee and the provincial spokesperson for Obstetrics. Within the Maternal and Women's Health programmes directorate he plays an active role in policy and guideline development for programmes involved in termination of pregnancy, sterilisation services, antenatal, intrapartum and postnatal care and confidential enquiries into maternal and perinatal deaths. He has participated in the development of the national maternity case record, the national maternity care guideline policy, written chapters for the national Saving Mothers report and serves on the provincial Committee for Confidential Enquiries into Maternal Deaths (NCCEMD) and the National Perinatal Mortality and Morbidity Committee (NaPeMMCo). Current international collaboration is with the International Consortium for Health Outcomes Measurement and with the Royal College of O&G in London, where he participated in the development of Best Practice Papers as part of the Leading Safe Choices collaboration.

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Full Programme / Volledige Program

Theme 1 / Tema 1

Health Systems Strengthening / Gesondheidsisteme Versterking

Lecture Hall 4 / Lesingsaal 4

Welcome 08h20-08h30: Prof Susan van Schalkwyk

FIRST SESSION / EERSTE SESSIE (Lecture Hall 4)

Session Chair / Sessie Voorsitter: Prof Susan van Schalkwyk

08h30-08h45 **THE VALUE OF SELF-DIRECTED LEARNING IN HEALTH PROFESSIONS EDUCATION: A SCOPING REVIEW**
IAN COUPER
(Abstract Nr 1)

08h45-09h00 **SELF-REGULATORY FEEDBACK DURING CLINICAL SKILLS TRAINING**
CHARMAIN VAN DER MERWE
(Abstract Nr 2)

09h00-09h15 **LESSONS LEARNT IN TEN YEARS OF EXTENDED DEGREE PROGRAMME**
ALWYN LOUW
(Abstract Nr 3)

09h15-09h30 **FAMILY PHYSICIANS WITHIN THE SOUTH AFRICAN DISTRICT HEALTH SYSTEM - IS OUR INFLUENCE TANGIBLE?**
KLAUS VON PRESSENTIN
(Abstract Nr 4)

09h30-09h45 **SURMEPI: ENHANCING EVIDENCE-BASED HEALTHCARE (EBHC) KNOWLEDGE AND SKILLS OF MEDICAL STUDENTS AT STELLENBOSCH RURAL CLINICAL SCHOOL (RCS) IN WORCESTER**
ANKE ROHWER
(Abstract Nr 5)

09h45-10h00 **THE STATE OF NEUROLOGICAL TRAINING IN MEDICAL SCHOOLS: A GLOBAL PERSPECTIVE**
BRAD HARRINGTON
(Abstract Nr 6)

10h00-10H30 **TEA AND POSTER DISCUSSIONS**

SECOND SESSION / TWEEDE SESSIE (Lecture Hall 4)
Session Chair / Sessie Voorsitter: Prof Susan van Schalkwyk

10h30-11h00 **STATE OF THE ART PRESENTATION 1 – PROF T YOUNG**
Title: *Development of a best practice model for teaching and learning evidence-based health care at Stellenbosch University"*

11h00-11h15 **LEADERS FOR HEALTHCARE 2030: PAHLM- A LEADERSHIP STRATEGY**
KERRIN BEGG
(Abstract Nr 7)

11h15-11h30 **EVALUATING A COACHIN & MENTORING MODEL FOR HEALTHCARE MANAGEMENT CAPACITY DEVELOPMENT IN THE OVERBERG DISTRICT**
FARZANEH BEHROOZI
(Abstract Nr 8)

11h30-11h45 **STUDENT HEALTH AND WELLNESS AT THEFACULTY OF MEDICINE SCIENCES, STELLENBOSCH UNIVERSITY: CURRENT STATUS AND NEEDS ASSESSMENT**
ANJA HORDIJK
(Abstract Nr 9)

11h45-12h30 **LUNCH** (Foyer between Lecture Hall 11 and 12) and **POSTER DISCUSSIONS**

MAIN PROGRAMME / HOOFPROGRAM (Lecture Hall 11)

12h30-13h00 **DEAN'S ADDRESS**

13H00-13h15 Introduction of the **GUEST SPEAKER**

13h15-14h00 **GUEST SPEAKER -** Prof Bongani Mayosi, Dean Designate: Faculty of Health Sciences, UCT
Title: *"60 Years of Health Research at Stellenbosch University: Profile and Impact*

14h00-14h30: **TEA AND POSTER DISCUSSIONS**

THIRD SESSION / DERDE SESSIE (Lecture Hall 4)

Session Chair / Sessie Voorsitter: Prof Lilian Dudley

14h30-14h45 **ASSESSING THE FOOD & NUTRITION SECURITY OF STELLENBOSCH UNIVERSITY MAIN CAMPUS UNDERGRADUATE STUDENTS**
PAGIE MOOLMAN
(Abstract Nr 10)

14h45-15h00 **MEASURING CLIENT SATISFACTION AT MGD STUDENT-RUN PRIMARY HEALTH CARE CLINICS**
JEREMI SWANEPOEL
(Abstract Nr 11)

15h00-15h15 **A MIXED METHODS STUDY OF SOUTH AFRICAN OCCUPATIONAL THERAPISTS' VIEWS AND PREFERENCES REGARDING SPECIALISATION IN OCCUPATIONAL THERAPY**
ELISNA JANSEN VAN RENSBERG
(Abstract Nr 12)

15h15-15h30 **THE EFFECTIVENESS OF A QULAITY IMPROVEMENT COLLABORATIVE TO ACCELERATE ELIMINATION OF MOTHER TO CHILD TRANSMISSION (EMTCT): KEY OUTCOMES AND DETERMINANTS FROM A DEMONSTRATION PHASE COLLABORATIVE IMPLEMENTED IN THJE EASTERN CAPE, 2012-2015**

NTIYISO SHINGWENYANA
(Abstract Nr 13)

15h30-15h45 **DID EXPOSING AN INTERPROFESSIONAL CLASS OF FIRST YEARS TO AN UNDERSERVED COMMUNITY CONTRIBUTE TO THE STUDENTS' CONTEXTUALISATION OF DETERMINANTS OF HEALTH?**
STEFANUS SNYMAN
(Abstract Nr 14)

15h45-16h00 **THE WESTERN CAPE POISONS HELPLINE, AN INNOVATIVE AND UNIQUE SERVICE IN AFRICA**
CJ MARKS
(Abstract Nr 15)

16h00-16h15 **ROOM TEMPERATURE STORAGE SOLUTIONS: AN ALTERNATIVE TO COLD CHAIN MANAGEMENT WITHIN NIOBANKS AND/OR DIAGNOSTICS AND RESEARCH LABORATORIES**
FATHIMA ABULFATHI
(Abstract Nr 16)

16h15-16h30 Closing

16h30-16h45 **TEA AND POSTER DISCUSSIONS**

POSTERS / PLAKKATE

1. THE UTILISATION OF EDUCATIONAL RESOURCES WITHIN THE DIVISIONS OF EMERGENCY MEDICINE AT STELLENBOSCH UNIVERSITY AND THE UNIVERSITY OF CAPE TOWN
NIEL VAN HOVING
(Abstract Nr 17)

2. DIETETIC STUDENTS TRAIN HEARING IMPAIRED STUDENTS: EXPERIENCES AND PERCEPTIONS OF BOTH GROUPS
YOLANDE SMIT
(Abstract Nr 18)

3. THE CLINICIAN'S EXPERIENCES OF A SIMULATED ART ADHERENCE EXERCISE: A QUALITATIVE STUDY
JUSTIN ENGELBRECHT
(Abstract Nr 19)

4. AN EXPLORATION OF PATIENTS' EXPERIENCES OF THE VALUE OF AN OCCUPATIONAL THERAPY OUTPATIENT CRAFT GROUP.
DOMINIQUE ROBERTS
(Abstract Nr 20)

5. ENHANCING EVIDENCE-BASED HEALTH CARE (EBHC) TEACHING AND LEARNING FOR UNDERGRADUATE MEDICAL STUDENTS AT THE FACULTY OF MEDICINE AND HEALTH SCIENCES, STELLENBOSCH UNIVERSITY: 2010-2015
ANKE ROHWER
(Abstract Nr 21)

6. OCCUPATIONAL THERAPY IN HOMES FOR THE AGED: A SURVEY OF PRACTICE IN SOUTH AFRICA
CECILE MICHAU (UNDERGRADUATE)
(Abstract Nr 22)

7. MAPPING THE ROLE PLAYERS, PROCESSES AND CONTEXT FOR CLINICAL PRACTICE GUIDELINE DEVELOPMENT AND USE FOR PRIMARY CARE CONDITIONS IN SA.
QUINETTE LOUW
(Abstract Nr 23)

8. THE COMPLEX SCIENCE OF BIOBANKING: THE NHLS/STELLENBOSCH UNIVERSITY BIOBANK (NSB), A SOUTH AFRICAN CASE STUDY
CARMEN SWANEPOEL
(Abstract Nr 24)

9. 'PATIENT-BLAME' IN THE CONTEXT OF THE ROLL-OUT OF 'UNIVERSAL TEST AND TREAT' – AN EXPLORATORY, CONCEPTUAL ANALYSIS OF COGNITIVE PROCESSES
GRAEME HODDINOTT
(Abstract Nr 25)

10. BUILDING TRUST IN A NEWLY-INTRODUCED PRIMARY HEALTH CARE PROFESSIONAL IN SOUTH AFRICA
KLAUS VON PRESSENTIN
(Abstract Nr 26)

11. LESSONS LEARNED ABOUT PHLEBOTOMY AND HIV RAPID TESTING IN THE POPULATION COHORT (PC): NURSES PERSPECTIVES FROM SOUTH AFRICA
FORTUNATE NDABA
(Abstract Nr 27)

12. THE AVAILABILITY AND KNOWLEDGE OF USE OF AIRWAY MANAGEMENT DEVICES IN EMERGENCY CENTRES AT REFERRAL HOSPITALS IN NAMIBIA
KAVETO SIKUVI
(Abstract Nr 28)

Theme 2 / Tema 2

Infectious Diseases/Infeksiesiektes
Lecture Hall 11 / Lesingsaal 11

Welcome 08h45-09h00: Prof Andrew Whitelaw

FIRST SESSION / EERSTE SESSIE

Session Chair / Sessie Voorsitter: Prof Andrew Whitelaw

09h00-09h15: **THE EFFECT OF HIV INFECTION ON THE AGE AT PRESENTATION OF HBV-DRIVEN HEPATOCELLULAR CARCINOMA IN SOUTH AFRICA.**
TONGAI MAPONGA, BARBRA ROBERTSON, HANNALI VERMEULEN, JUDITH JACOBSON, MICHAEL KEW, MONIQUE ANDERSSON, PAUL RUFF, SEAN BURMEISTER, WOLFGANG PREISER
(Abstract Nr 1)

09h15-09h30: **REGULATION OF IRON-SULPHUR CLUSTER BIOGENESIS IN MYCOBACTERIUM TUBERCULOSIS.**
DANICKE WILLEMSE, BRANDON WEBER, ROBIN MARK WARREN, SALVATORE ADINOLFI, ANNALISA PASTORE, MONIQUE WILLIAMS
(Abstract Nr 2)

09h30-09h45: **BAT CORONAVIRUSES – HOW DO THEY JUMP THE SPECIES BARRIER?**
TASNIM SULIMAN, ISABELLA ECKERLE, BENJAMIN MEYER, MARCEL MUELLER, WOLFGANG PREISER
(Abstract Nr 3)

09h45-10h00: **ISONIAZID FOR PREVENTING TUBERCULOSIS IN HIV-INFECTED CHILDREN.**
MOLEEN ZUNZA, DIANE GRAY, TARYN YOUNG, MARK COTTON,HEATHER ZAR
(Abstract Nr 4)

10h00-10h30: **BREAK: TEA AND POSTER DISCUSSION**

SECOND SESSION / TWEEDE SESSIE (Lecture Hall 11)

Session Chair / Sessie Voorsitter: Prof Grant Theron

10h30-11h00 **AJ BRINK STATE OF THE ART PRESENTATION 2 - PROF. PAUL VAN HELDEN**
Title: *The Changing Face of TB at SUN: Reflections of a Beginner*

11h00-11h15: **EARLY PATHOGENESIS OF TUBERCULOUS MENINGITIS STUDIED IN HUMAN AND ZEBRAFISH.**
LISANNE M. VAN LEEUWEN, DANIEL FRANKEN, DAN ZAHARIE, SABINE L. VAN ELSLAND, A. MARCELINE TUTU VAN FURTH, WILBERT BITTER, MARTIJN VAN DER KUIP, ASTRID M. VAN DER SAR

(Abstract Nr 5)

11H15-11H30: **A NOVEL INHIBITOR OF GYRASE B IS A POTENT DRUG CANDIDATE FOR THE TREATMENT OF TUBERCULOSIS INFECTION**
ANDILE NGWANE, BIENYAMEEN BAKER, IAN WIID, PAUL VAN HELDEN
(Abstract Nr 6)

11h30-11h45 **AWARDING OF HD BREDE AWARD FOR TUBERCULOSIS RESEARCH**

11h45-12h30 **LUNCH** (Foyer between Lecture Hall 11 and 12) and **POSTER DISCUSSIONS**

MAIN PROGRAMME / HOOFPROGRAM (Lecture Hall 11)

12h30-13h00 **DEAN'S ADDRESS**

13H00-13h15 Introduction of the **GUEST SPEAKER**

13h15-14h00 **GUEST SPEAKER -** Prof Bongani Mayosi, Dean Designate: Faculty of Health Sciences, UCT
Title: *"60 Years of Health Research at Stellenbosch University: Profile and Impact*

14h00-14h30: **TEA AND POSTER DISCUSSIONS**

THIRD SESSION / DERDE SESSIE (Lecture Hall 11)

Session Chair / Sessie Voorsitter: Prof Monika Esser

14h30-14h45: **PARAMYXOVIRUSES IN SOUTH AFRICAN SMALL MAMMALS.**
BRONWYN KLEINHANS, NDAPEWA ITHETE, WOLFGANG PREISER
(Abstract Nr 7)

14h45-15h00: **RADIOLOGICAL PROGRESSION OF LUNG DISEASE IN HIV-INFECTED CHILDREN – A LONGITUDINAL STUDY.**
RICHARD DENYS PITCHER, CARL LOMBARD, HEATHER ZAR, MARK COTTON, STEPHEN BENINGFIELD
(Abstract Nr 8)

15h00-15h15: **THE FIRST EVALUATION OF THE DIAGNOSTIC PERFORMANCE OF THE FLUOROTYPE MTBDR ASSAY FOR THE DETECTION OF MYCOBACTERIUM TUBERCULOSIS AND RESISTANCE TO RIFAMPICIN AND ISONIAZID.**
MARGARETHA DE VOS, MARTIN ECKART, TANIA DOLBY, JOHN SIMPSON, PAUL VAN HELDEN, VERA ALLERHEILIGEN, ROB WARREN
(Abstract Nr 9)

15h15-15h30: **DIVERSITY AND ECOLOGY OF NOVEL CORONAVIRUSES IN SOUTH AFRICAN BATS.**
NADINE SAMPSON, NDAPEWA ITHETE, LEIGH RICHARDS, CORRIE SCHOEMAN, WOLFGANG PREISER
(Abstract Nr 10)

15h30-15h45: **SURVEILLANCE OF HEALTHCARE-ASSOCIATED INFECTION IN HOSPITALIZED SOUTH AFRICAN CHILDREN: WHICH METHOD PERFORMS BEST?**

ANGELA DRAMOWSKI, ANDREW WHITELAW, MARK F. COTTON
(Abstract Nr 11)

15h45-16h00: **PERCUTANEOUS PERICARDIOSCOPY IN A POPULATION WITH A HIGH PREVALENCE OF TUBERCULOUS PERICARDITIS – IMPROVING THE DIAGNOSTIC YIELD AND ADVANCING THE TIME TO DIAGNOSIS.**
CHARLES GEORGE KYRIAKAKIS, ANTON FRANS DOUBELL, HELLMUTH STEPHAN VON HEYDERHOFF WEICH
(Abstract Nr 12)

16h00-16h15: **MOLECULAR DETECTION OF MYCOBACTERIUM TUBERCULOSIS IN STOOL OF CHILDREN WITH SUSPECTED INTRATHORACIC TUBERCULOSIS.**
C BOSCH, E WALTERS, R WARREN, AC HESSELING, AM DEMERS, K HOEK
(Abstract Nr 13)

16h15-16h30: **HIV-1 DIVERSITY AND DRUG RESISTANCE MUTATIONS DETECTED IN THE EASTERN CAPE PROVINCE, SOUTH AFRICA.**
SHANNON KIEWITZ, MATHILDA CLAASSEN, GRAEME JACOBS, GERT VAN ZYL, SUSAN ENGELBRECHT
(Abstract Nr 14)

16h30-16h45 **TEA AND POSTER DISCUSSIONS**

POSTERS / PLAKKATE

1. **NEAR FULL-LENGTH GENOME (NFLG) CHARACTERIZATION OF HIV-1 SUBTYPE B IDENTIFIED IN SOUTH AFRICA.**
EMMANUEL OBASA ADETAYO
(Abstract Nr 15)

2. **EVALUATION OF THE EFFECTIVENESS OF DOSE INDIVIDUALISATION TO ACHIEVE THERAPEUTIC VANCOMYCIN CONCENTRATIONS.**
AHMED ABULFATHI, BERND ROSENKRANZ, ERIC DECLOEDT
(Abstract Nr 16)

3. **THE IDENTIFICATION OF NOVEL PROTEINS INVOLVED IN IRON-SULPHUR CLUSTER BIOGENESIS IN MYCOBACTERIA.**
JESSIE ARRIES, SAMANTHA SAMPSON, ROB WARREN, MONIQUE WILLIAMS
(Abstract Nr 17)

4. **EVALUATION OF HOST MARKERS FOR TRACKING EARLY TREATMENT RESPONSE IN NEWLY DIAGNOSED PULMONARY TB PATIENTS: EARLY BACTERICIDAL ACTIVITY (EBA) STUDY.**
DOLAPO AWONIYI
(Abstract Nr 18)

5. **COMBINED SPECIFIC IGG- AND IGA-BASED DIAGNOSIS OF TUBERCULOSIS IN AFRICAN PRIMARY HEALTHCARE CLINIC ATTENDEES WITH SIGNS AND SYMPTOMS SUGGESTIVE OF TB.**
DOLAPO AWONIYI

(Abstract Nr 19)

6. **A BIOSIGNATURE OF SIX ANALYTES DETECTED TB IN HIV-UNINFECTED AFRICAN ADULTS USING OVERNIGHT WHOLE BLOOD ASSAY.**
DOLAPO AWONIYI
(Abstract Nr 20)

7. **BIOMECHANICAL ANALYSIS OF SPECIFIC MOTOR IMPAIRMENTS CONTRIBUTING TO EARLY FUNCTIONAL DECLINE IN ADULTS LIVING WITH HIV/AIDS - SUB-STUDY TO THE CAPE WINELANDS HAART TO HEART STUDY.**
KARINA BERNER
(Abstract Nr 21)

8. **A RETROSPECTIVE STUDY EVALUATING THE EFFICACY OF IDENTIFICATION AND MANAGEMENT OF SEPSIS AT A WESTERN CAPE PROVINCE DISTRICT LEVEL HOSPITAL INTERNAL MEDICINE DEPARTMENT, IN COMPARISON TO THE GUIDELINES STIPULATED IN THE SURVIVING SEPSIS CAMPAIGN 2012.**
RAISA BHIKOO
(Abstract Nr 22)

9. **DECIPHERING THE GENETIC SUSCEPTIBILITY TO A RARE CHILDHOOD FORM OF TB, TUBERCULOUS MENINGITIS (TBM).**
NICHOLAS BOWKER
(Abstract Nr 23)

10. **THE EFFECT OF HIV ON VULVAR CANCER.**
JENNIFER BUTT, JUDITH S JACOBSON, MATTHYS H BOTHA
(Abstract Nr 24)

11. **CHANGES IN IN VITRO IMMUNE RESPONSES IN AFRICAN BUFFALOES (SYNCERUS CAFFER) FOLLOWING THE TUBERCULIN SKIN TEST.**
CHARLENE CLARKE, PAUL D. VAN HELDEN, SVEN, D.C. PARSONS, MICHELE A. MILLER
(Abstract Nr 25)

12. **DECREASED SENSITIVITY AND INCREASED INDETERMINATE RATES OF GENOTYPE MTBDRPLUS (V2.0) ARE ASSOCIATED WITH USE OF INAPPROPRIATE PCR RAMP RATE: IMPLICATIONS FOR ROUTINE DIAGNOSTIC LABORATORIES.**
BRIGITTA DERENDINGER, MARGARETHA DE VOS, TANIA DOLBY, JOHN SIMPSON, PAUL VAN HELDEN, ROBIN WARREN, GRANT THERON
(Abstract Nr 26)

13. **INVESTIGATING RECURRENCE OF TUBERCULOSIS DUE TO RELAPSE AND REINFECTION USING WHOLE GENOME SEQUENCING.**
ANZAAN DIPPENAAR, MARGARETHA DE VOS, FLORIAN MARX, RUBEN VAN DER MERWE, ARNAB PAIN, PAUL VAN HELDEN, ROB WARREN, SAMANTHA SAMPSON
(Abstract Nr 27)

14. **A NOVEL DRIED BLOOD SPOT POOLING STRATEGY FOR DIAGNOSING ACUTE HIV INFECTION IN RESOURCE LIMITED SETTINGS.**
WENTZEL DOWLING, MARY GRACE KATUSIIME, KIRSTEN VELDSMAN, GERT VAN ZYL
(Abstract Nr 28)

15. **LESSONS LEARNED WITH THE IMPLEMENTATION OF HOUSEHOLD TB.**
FRANCIONETTE ESAU, ZIMASA GCWABE, KAMVELIHLE SABISA, BLIA YANG, PETER BOCK, NULDA BEYERS, HELEN AYLES, SARAH FIDLER, RICHARD HAYES.
(Abstract Nr 29)

16. **A RETROSPECTIVE IMMUNOHISTOCHEMICAL ANALYSIS OF CENTRAL NERVOUS SYSTEM GRANULOMAS IN PATIENTS WITH TUBERCULOUS MENINGITIS.**
D.J. FRANKEN, D. ZAHARIE, S.L.VAN ELSLAND, R. VAN TOORN, M. VAN DER KUIP, A.M. TUTU VAN FURTH
(Abstract Nr 30)

17. **THE USE OF WHOLE EXOME SEQUENCING METHODS TO IDENTIFY NOVEL DISEASE-CAUSING VARIANTS IN SOUTH AFRICAN PATIENTS WITH PRIMARY IMMUNODEFICIENCY DISEASES (PIDS).**
BRIGITTE GLANZMANN, MARLO MÖLLER, EILEEN HOAL, MARDELLE SCHOEMAN, MICHAEL URBAN, MONIKA ESSER, CRAIG KINNEAR
(Abstract Nr 31)

18. **CASE STUDY OF CHALLENGES OF LINKAGE TO HIV CARE FOR CHILDREN, THE STRATEGIES IDENTIFIED BY THE CHIP TEAM, AND THE OUTCOMES IN HPTN 071 (POPART) INTERVENTION, SOUTH AFRICA.**
SANDRA GRÜNEWALD, BLIA YANG, GAYNORE PIETERSEN, HELEN AYLES, MISEKA NTITSOLO, NULDA BEYERS, PETER BOCK, RICARDO FELIX, RICHARD HAYES, SAM GRIFFITH, SARAH FIDLER
(Abstract Nr 32)

19. **DEVELOPMENT OF A GENE EXPRESSION ASSAY TO DETERMINE THE ANTIGEN-STIMULATED M. BOVIS IMMUNE RESPONSE IN SPOTTED HYENAS (CROCUTA CROCUTA).**
ROXANNE HIGGITT
(Abstract Nr 33)

20. **CHARACTERISING THE PERSISTING RESERVOIR IN HIV-1 SUBTYPE C PATIENTS ON LONG-TERM SUPPRESSIVE ANTIRETROVIRAL THERAPY**
MARY GRACE KATO KATUSIIME, JOHN MELLORS, MARY KEARNEY, WEI SHAO, PROF MARK COTTON,SUSAN ENGELBRECHT, GERT VAN ZYL
(Abstract Nr 34)

21. **SLOW GROWING FORMS OF MYCOBACTERIUM TUBERCULOSIS CONTRIBUTE TO SHORTENING THE TIME TO POSITIVITY OF LIQUID CULTURE**
XAVIER KAYIGIRE, ANDREAS H DIACON, LIZE VAN DER MERWE, SVEN O FRIEDRICH
(Abstract Nr 35)

22. **AUTOMATIC ALGORITHM-BASED REVIEW OF HIV SEROLOGY IMPROVES RESULT MANAGEMENT.**
JAYSHREE MAHARAJ, JEAN MARITZ
(Abstract Nr 36)

23. **OUTCOMES OF RESECTABLE PULMONARY ASPERGILLOMATA AT TYGERBERG HOSPITAL: A RETROSPECTIVE STUDY.**
SALIM RASHID MASOUD, BRIAN WILLIAM ALLWOOD, COENRAAD FREDERIK NICOLAAS KOEGELENBERG, ELVIS M IRUSEN, LEONARD JOHANNES DU PREEZ
(Abstract Nr 37)

24. **VIRAL INFECTIONS AND IMMUNE BIOMARKERS OF INFECTION AND INFLAMMATION IN CASES OF SUDDEN UNEXPECTED DEATH IN INFANTS (SUDI) AT THE TYGERBERG MEDICO-LEGAL MORTUARY.**
DON MAKWAKIWE MATSHAZI,JOHAN DEMPERS, CORENA DE BEER
(Abstract 38)

25. **HIV-1 RESISTANCE ANALYSES OF THE CAPE WINELANDS DISTRICTS, SOUTH AFRICA.**

SELLO GIVEN MIKASI, SUSAN ENGELBRECHT, GRAEME BRENDON JACOBS
(Abstract Nr 39)

26. **LESSONS LEARNED WITH THE USE OF A HANDHELD ELECTRONIC DATA CAPTURE (EDC) DEVICE TO COLLECT DATA DURING THE HPTN 071 (POPART) INTERVENTION IN SOUTH AFRICA.**
JERRY MOLAOLWA, BLIA YANG, HELEN AYLES, NULDA BEYERS, PETER BOCK, RICHARD HAYES, RORY DUNBAR, SAM GRIFFITHS, SARAH FIDLER, SIAN FLOYD
(Abstract Nr 40)

27. **INVESTIGATING THE FUNCTION OF A-TYPE CARRIER PROTEINS IN MYCOBACTERIA.**
NANDI NIEMAND, MONIQUE WILLIAMS, BRANDON WEBER
(Abstract Nr 41)

28. **HOW DO AUTHORS OF DIAGNOSTIC TEST ACCURACY (DTA) REVIEWS DISSEMINATE THEIR FINDINGS AFTER PUBLICATION?**
ELEANOR OCHODO,ALISON WIYEH, CHARLES WIYSONGE, GOWRI GOPALAKRISHNA, MARISKA LEEFLANG, TARYN YOUNG
(Abstract Nr 42)

29. **B-LACTAM RESISTANCE MECHANISMS IN ENTEROBACTER SPP. ISOLATES FROM TYGERBERG HOSPITAL.**
DORA OKYERE,MAE NEWTON-FOOT, PROF. ANDREW WHITELAW
(Abstract Nr 43)

30. **OPTIMIZATION OF FLOW CYTOMETRIC METHODS FOR MYCOBACTERIAL VIABILITY DISCRIMINATION AND CELL ENUMERATION.**
TRISHA PARBHOO, JOMIEN MOUTON, SAMANTHA SAMPSON
(Abstract Nr 44)

31. **THE EPIDEMIOLOGY OF ESBL-PRODUCTION IN ENTEROBACTERIACEAE WITH CHROMOSOMAL B-LACTAMASES.**
LAUREN PATERSON, PHILBE-JEANNE ALLEY, MAE NEWTON-FOOT, KIM HOEK, ANDREW WHITELAW
(Abstract Nr 45)

32. **MOUSE MACROPHAGES DISPLAY DIFFERENTIALLY EXPRESSED GENES FOR INFECTION WITH PATHOGENIC VERSUS NON-PATHOGENIC MYCOBACTERIA.**
RAY-DEAN PIETERSEN, IAN WIID, GINA LEISCHING, CAREL VAN HEERDEN, BIENYAMEEN BAKER
(Abstract Nr 46)

33. **INVESTIGATING THE INDUCTION OF AUTOPHAGY BY DIFFERENT MYCOBACTERIUM TUBERCULOSIS STRAINS: DO STRAIN SPECIFIC DIFFERENCES EXIST?**
ALMA POLSON
(Abstract Nr 47)

34. **APPLYING SEROLOGY AS A METHOD TO DETECT *MYCOBACTERIUM BOVIS* IN COMMON WARTHOGS *PHACOCHOERUS AFRICANUS*.**
EDUARD O. ROOS, SVEN DC PARSONS, MICHELE A MILLER
(Abstract Nr 48)

35. **IDENTIFICATION OF NOVEL CANDIDATE GENES FOR SUSCEPTIBILITY TO TUBERCULOSIS BY IDENTIFYING DISEASE-CAUSING MUTATIONS IN INDIVIDUALS WITH PRIMARY IMMUNODEFICIENCY DISORDERS**
NIKOLA SCHLECHTER, ANDRE FRANKE, BRITT-SABINA PETERSEN, EILEEN HOAL VAN HELDEN, MARDELLE SCHOEMAN, MICHAEL URBAN, MONIKA ESSER,MARLO MÖLLER,CRAIG KINNEAR
(Abstract Nr 49)

36. **INVESTIGATION OF X-CHROMOSOME VARIANTS IN SUSCEPTIBILITY TO PULMONARY TUBERCULOSIS IN TWO AFRICAN POPULATIONS USING GENOTYPING ARRAY TECHNOLOGIES.**
HAIKO SCHURZ, CRAIG KINNEAR, EILEEN G. HOAL, MUNEEB SALIE, MARLO MÖLLER
(Abstract Nr 50)

37. **WORKING TOWARDS INCREASING THE NUMBER OF HIV-INFECTED PEOPLE WHO KNOW THEIR STATUS IN CAPE TOWN SOUTH AFRICA. LEARNING FROM TWO INNOVATIVE COMMUNITY-BASED HIV COUNSELLING AND TESTING STRATEGIES.**
LEANDIE SEPTEMBER
(Abstract Nr51)

38. **SCREENING OF COMMERCIALLY AVAILABLE ANTIBODIES FOR USE IN FLOW CYTOMETRIC ANALYSIS IN AFRICAN LIONS (*PANTHERA LEO*).**
TASHNICA TAIME SYLVESTER, MICHELE MILLER, SVEN PARSONS, ANDRE LOXTON
(Abstract Nr52)

39. **POPULATION STRUCTURE AND BIOFILM FORMATION OF PSEUDOMONAS AERUGINOSA ISOLATES FROM PATIENTS WITH SEVERE BURN WOUNDS AT TYGERBERG HOSPITAL.**
BERNARDUS VAN BILJON, ANDREW WHITELAW, KIM HOEK, MAE NEWTON-FOOT
(Abstract Nr 53)

40. **INVESTIGATING THE POSSIBLE IMMUNOACTIVE AND ANTI-MYCOBACTERIAL PROPERTIES OF VARIOUS SURFACTANTS.**
LYNE VAN RENSBURG, JOHAN SMITH, JOHANN M VAN ZYL
(Abstract Nr 54)

41. **INVESTIGATING THE ROLE OF LTA4H IN PULMONARY TUBERCULOSIS AND TUBERCULOSIS MENINGITIS.**
TALANI VAN SCHALKWYK, NICHOLAS BOWKER, EILEEN G HOAL, MARLO MÖLLER
(Abstract Nr 55)

42. **CHARACTERISATION OF SCCMEC TYPES IN METHICILLIN-RESISTANT STAPHYLOCOCCI AT A TERTIARY HOSPITAL IN CAPE TOWN, SOUTH AFRICA.**
KRISTIEN NEL VAN ZYL, ANDREW C WHITELAW, KARAYEM J KARAYEM, KIM GP HOEK
(Abstract Nr 56)

43. **DNA EXTRACTED FROM USED XPERT MTB/RIF CARTRIDGES CAN BE USED FOR SECOND-LINE DRUG SUSCEPTIBILITY TESTING.**
ROUXJEANE VENTER, BRIGITTA DERENDINGER, SAMANTHA NAIDOO, MARGARETHA DE VOS, TANIA DOLBY, JOHN SIMPSON, PAUL VAN HELDEN, ROBIN WARREN, GRANT THERON
(Abstract Nr 57)

44. **GENOMIC DIVERSITY OF MYCOBACTERIUM TUBERCULOSIS; A PILOT STUDY IN PATIENTS WITH TUBERCULOUS MENINGITIS.**
P. VERSTEEGEN, E. M. STREICHER, S. D. ZAHARIE, S. L. VAN ELSLAND, M. VAN DER KUIP, R. M. WARREN, A. M. TUTU - VAN FURTH
(Abstract Nr 58)

45. **GENEXPERT MTB/RIF ON STOOL IS USEFUL FOR THE RAPID DIAGNOSIS OF PULMONARY TUBERCULOSIS IN CHILDREN WITH SEVERE DISEASE.**
ELISABETTA WALTERS, ANDREW WHITELAW, ANNE-MARIE DEMERS, ANNEKE C HESSELING, CORNE BOSCH, HEATHER R DRAPER, HENDRIK S SCHAAF, MARIEKE VAN DER ZALM,MEGAN PALMER, PIERRE GOUSSARD, ROBERT P GIE, ROBIN M WARREN, SVEN O FRIEDRICH

(Abstract Nr 59)

46. **TUBERCULOSIS AND VISCERAL RIB LESIONS IN THE KIRSTEN SKELETAL COLLECTION.**
JACKLYNN WALTERS, AMANDA ALBLAS, LINDA M. GREYLING
(Abstract Nr 60)

Theme 3 / Tema 3

Violence, Injuries, Trauma and Rehabilitation / Geweld, Beserings, Trauma en Rehabilitasie

Lecture Hall 7 / Lesingsaal 7

Welcome 08:45 – 09:00: Dr Linzette Morris

FIRST SESSION / EERSTE SESSIE (Lecture Hall 7)

Chairperson / Voorsitter: Dr Linzette Morris

09h00-09h15 **DEVELOPING CLINICAL PRACTICE GUIDELINES FOR SOUTH AFRICAN EMERGENCY CARE: A METHODOLOGICAL OVERVIEW**
MICHAEL MCCAUL, BEN DE WAAL, PETER HODKINSON, JENN PIGOGA, TARYN YOUNG, LEE WALLIS
(Abstract Nr 1)

09h15-09h30 **CERVICAL SPINE FACET DISLOCATIONS; AN AUDIT OF TIME DELAYS BETWEEN INJURY AND REDUCTION**
DELMAR BADENHORST, JOHAN DAVIS, MOOSA MOHIDEEN, MSW POTGIETER
(Abstract Nr 2)

09h30-09h45 **PARALYMPIC ATHLETES WITH CEREBRAL PALSY DISPLAY ALTERED PACING STRATEGIES IN DISTANCE-DECEIVED SHUTTLE RUNNING TRIALS**
PHOEBE RUNCIMAN
(Abstract Nr 3)

09h45-10h00 **QUESTIONS AND DISCUSSION**

10h00-10h30 **TEA AND POSTER DISCUSSION**

SECOND SESSION / TWEEDE SESSIE (Lecture Hall 7)

Chairperson / Voorsitter: Me Yolande Smit

10h30-11h00 **STATE OF THE ART PRESENTATION 3 - PROF. QUINETTE LOUW**
Title: *Beyond scientific to social impact*

11h00-11h15 **DOES ADHERENCE TO INTERNATIONAL HEAT GUIDELINES AFFECT INJURY AND ILLNESS IN ATHLETES WITH DISABILITY, THE DOHA EXPERIENCE**
LARA GROBLER, AND WAYNE DERMAN
(Abstract Nr 4)

11h15-11h30 **KNOWLEDGE, BELIEFS AND PRACTICES OF PERSONS WITH SPINAL CORD INJURY ON PRESSURE ULCERS.**
ADRI MARICA VISSER AND SURONA VISAGIE
(Abstract Nr 5)

11h30-11h45 **QUESTIONS AND DISCUSSION**

11h45-12h30 **LUNCH** (Foyer between Lecture Hall 11 and 12) and **POSTER DISCUSSIONS**

MAIN PROGRAMME / HOOFPROGRAM (Lecture Hall 11)

12h30-13h00 **DEAN'S ADDRESS**

13H00-13h15 Introduction of the **GUEST SPEAKER**

13h15-14h00 **GUEST SPEAKER -** Prof Bongani Mayosi, Dean Designate: Faculty of Health Sciences, UCT
Title: *"60 Years of Health Research at Stellenbosch University: Profile and Impact*

14h00-14h30: **TEA AND POSTER DISCUSSIONS**

THIRD SESSION / DERDE SESSIE (Lecture Hall 7)

Session Chair / Sessie Voorsitter: Dr Linzette Morris

14h30-14h45: **ARBEIDSTERAPEUTE SE PERSPEKTIEWE EN ERVARINGS RAKENDE DIE BEMAGTIGERS EN HINDERNISSE MET DIE HERINTEGRASIE VAN ADOLESSENTE, IN DIE WES-KAAP, MET TRAUMATIESE BREINBESERINGS (TBB) TOT DIE SKOOL.**
CARLA VAN DEN WORM, DELENE SMUTS, ELAINE MOOLMAN, GINIE LE ROUX, LARA PUCHERT
(Abstract Nr 6)

14h45-15h00: **THE USE OF WII AS REHABILITATION FOR PATIENTS WITH TBI - REVIEW.**
WII AND TBI GROUP
(Abstract Nr 7)

15h00-15h15: **SR-EFFECTIVENESS OF PBWSTT VS PHYSIOTHERAPY AND/OR OVERGROUND GAIT TRAINING IN CHILDREN WITH CP.**
A DIPPENAAR, B FELL, M FOURIE, S HIME, E JANSE VAN RENSBURG, GAKEEMAH INGLIS-JASSIEM
(Abstract Nr 8)

15h15-15h30: **THE EFFECTIVENESS OF PROPRIOCEPTIVE AND NEUROMUSCULAR TRAINING COMPARED TO BRACING IN REDUCING THE RECURRENCE RATE OF ANKE SPRAINS IN ATHLETES.**
MARK GALANTE, DANIELLE FOOT, DANE O'CONNOR, DEMI DREYER, SHAMEEM ZALGAONKIR, ROSCOE FISHER
(Abstract Nr 9)

15h30-15h45 **QUESTIONS AND DISCUSSION**

15h45-16h00 **CLOSING**

POSTERS / PLAKKATE

1. **OPERATIONS PERFORMED BY THE NATIONAL SEA RESCUE INSTITUTE OF SOUTH AFRICA OVER A 3-YEAR PERIOD**
   ELAINE ERASMUS, CLEEVE ROBERTSON, DANIEL VAN HOVING
   (Abstract Nr 10)

2. **THE WESTERN CAPE POISONS HELPLINE, AN INNOVATIVE AND UNIQUE SERVICE IN AFRICA.**
   C J MARKS, C STEPHEN, CA WIUM, CE DU PLESSIS
   (Abstract Nr 11)

3. **BERG ADDER BITE**
   ARINA DU PLESSIS, CARINE MARKS, CHERYLYNN WIUM, GERBUS MULLER
   (Abstract Nr 12)

4. **FACTORS FACILITATING COMPLETION OF MAINSTREAM EDUCATION IN AN ORDINARY SCHOOL: REFLECTIONS OF YOUNG ADULTS WITH CEREBRAL PALSY**
   ROSEMARY LUGER, MARTHA GEIGER, MARCIA LYNER-CLEOPHAS
   (Abstract Nr 13)

5. **CONTINUUM OF CHANGE IN THE ACHILLES AND PATELLA TENDONS OF ASYMPTOMATIC TRACK AND FIELD ATHLETES**
   JEANDRE THEUNIS VILJOEN, JO-ANNE KIRBY, PIERRE VIVIERS
   (Abstract Nr 14)

Theme 4 / Tema 4

Non-Communicable Diseases / Nie-oordraagbare Siektes
Main Lecture Hall / Hoofvoorlesingsaal

Welcome 08h45-09h00: Prof Coenie Koegelenberg

FIRST SESSION / EERSTE SESSIE (Main Lecture Hall / Hoofvoorlesingsaal)

Session Chair / Sessie Voorsitter: Prof Coenie Koegelenberg

09h00-09h15 **RENAL BIOPSY FINDINGS IN DIABETIC PATIENTS AT TYGERBERG HOSPITAL**
LLOYD H JOUBERT, W.D. BATES, M.R. MOOSA
(Abstract Nr 1)

09h15-09h30 **A COMPARISON OF MORPHOLOGY AND MORPHOMETRY ANALYSIS IN THE EVALUATION OF ADULT CARDIOMYOCYTE INJURY**
ANÉL BOTHA, EBRAHIM SAMODIEN, JOHN LOPES
(Abstract Nr 2)

09h30-09h45 **PPAR α γ STIMULATION IS BENEFICIAL IN COMBINED ANTIRETROVIRAL THERAPY**
DEE M. BLACKHURST, PETER WAWERU MWANGI, RUDUWAAN, FESTUS KAMAU, HANS STRIJDOM
(Abstract Nr 3)

09h45-10h00 **THE PREVALENCE AND CAUSES OF WARFARIN TOXICITY IN TYGERBERG HOSPITAL**
A JACOBS, FC BASSA, EH DECLOEDT
(Abstract Nr 4)

10h00-10h30 **TEA AND POSTER DISCUSSIONS**

SECOND SESSION / TWEEDE SESSIE (Main Lecture Hall / Hoofvoorlesingsaal)

Session Chair / Sessie Voorsitter: Prof B Ascott-Evans

10h30-10h45 **LESSONS LEARNT FROM PLANNED, TARGETED DISSEMINATION OF A SYSTEMATIC REVIEW ON A CONTROVERSIAL NUTRITION TOPIC**
CELESTE E. NAUDE, TARYN YOUNG, PAUL GARNER, ANEL SCHOONEES, JIMMY VOLMINK
(Abstract Nr 5)

10h45-11h00 **COFFEE OR TEA: WHICH ONE MAY BE BENEFICIAL FOR WEIGHT-LOSS?**
HANÉL SADIE-VAN GIJSEN, WILLIAM FERRIS
(Abstract Nr 6)

11h00-11h15 **HIGH FAT DIET-INDUCED OBESITY: THE ROLE OF EPAC (EXCHANGE PROTEIN DIRECTLY ACTIVATED BY CYCLIC AMP) IN MYOCARDIAL ISCHAEMIA/REPERFUSION OF EX VIVO RAT HEARTS.**
Z NDLOVU, H STRIJDOM, A LOCHNER, E MARAIS
(Abstract Nr 7)

11h15-11h30 **LUPUS NEPHRITIS AT TYGERBERG HOSPITAL - AN EXPERIENCE OVER THREE DECADES**
URISHA BRIJLAL
(Abstract Nr 8)

11h30-11h45 **THE HEART OF THE MATTER: HOW VISUAL PARTICIPATORY METHODS CAN FACILITATE KNOWLEDGE EXCHANGE FOR COMMUNITY ENGAGEMENT IN BIOMEDICINE**
G BLACK, H STRIJDOM
(Abstract Nr 9)

11h45-12h30 **LUNCH** (Foyer between Lecture Hall 11 and 12) and **POSTER DISCUSSIONS**

MAIN PROGRAMME / HOOFPROGRAM (Lecture Hall 11)

12h30-13h00 **DEAN'S ADDRESS**

13H00-13h15 Introduction of the **GUEST SPEAKER**

13h15-14h00 **GUEST SPEAKER -** Prof Bongani Mayosi, Dean Designate: Faculty of Health Sciences, UCT
Title: *"60 Years of Health Research at Stellenbosch University: Profile and Impact*

14h00-14h30: **TEA AND POSTER DISCUSSIONS**

THIRD SESSION / DERDE SESSIE (Main Lecture Hall / Hoofvoorlesingsaal)

Session Chair / Sessie Voorsitter: Prof H Strijdom

14h30-15h00 **STATE OF THE ART PRESENTATION 4 -PROF SORAYA BARDIEN-KRUGER**
Title: *The rise of non-communicable disorders in sub-Saharan Africa*

15h00-15h15 **A REVIEW OF ANIMAL MODELS FOR DIABETES MELLITUS: CURRENT CONCEPTS, RESEARCH AND IMPLICATIONS**
ROCHELLE VAN WIJK
(Abstract Nr 10)

15h15-15h30 **MAGNIFYING MOVEMENT: THE USE OF EULERIAN VIDEO MAGNIFICATION TO ENHANCE DETECTION OF MUSCLE FASCICULATIONS IN ALS**
LUDO VAN HILLEGONDSBERG, JONATHAN CARR, NAEEM BREY, FRANCLO HENNING
(Abstract Nr 11)

15h30-15h45 **GLUCOCORTICOIDS REDUCE THE CELL VIABILITY OF MSCS DERIVED FROM THE PROXIMAL FEMUR BUT NOT FROM BONE MARROW OF RATS**

ALEX JACOBS, HANEL SADIE-VAN GIJSEN, MARI VAN DE VYVER, WILLIAM FERRIS
(Abstract Nr 12)

15h45-16h00 **MITRAL VALVE ABNORMALITIES IN PATIENTS WITH BICUSPID AORTIC VALVES – IS THERE A LINK?**
ANNARI VAN RENSBURG, ANTON DOUBELL, PHILIP HERBST
(Abstract Nr 13)

16h00-16h15 **STAFF HEALTH AND WELLNESS AT THE FACULTY OF MEDICINE AND HEALTH SCIENCES (FMHS), STELLENBOSCH UNIVERSITY (SU): CURRENT STATUS AND NEEDS ASSESSMENT**
DOMINIQUE BREAKEY, JANUS COETZEE, BIANCA KROUKAM, LETHABO MOGASHOA, SHARON RYAN, LINDIWE SKHOSANA, NELENE KOEN, EVETTE VAN NIEKERK
(Abstract Nr 14)

16h15-16h30 **QUESTIONS AND DISCUSSION**

16h30-16h45 **TEA AND POSTER DISCUSSIONS**

FOURTH SESSION / VIERDE SESSIE (Main Lecture Hall / Hoofvoorlesingsaal)

Session Chair / Sessie Voorsitter: Prof H Strijdom

16h45-17h00 **THE EFFECT TREATMENT OF ROOIBOS TEA ON VASCULAR FUNCTION IN OBESE RAT AORTA**
NADA ELDIEB, DIRK BESTER, ERNA MARAIS
(Abstract Nr 15)

17h00-17h15 **AUDIT OF STANDARD OF CARE MEASURES AND COMPLICATIONS IN A TERTIARY TYPE I DIABETIC (DM1) CLINIC: A DIFFERENT PERSPECTIVE.**
JOCELYN HELLIG
(Abstract Nr 16)

17h15-17h30 **A 5-YEAR RETROSPECTIVE AUDIT OF THE CLINICAL OUTCOME OF INTRAVENOUS IMMUNOGLOBULIN (IVIG) IN ADULT HAEMATOLOGY PATIENTS WITH REFERENCE TO THE USAGE AND COST EFFECTIVENESS AT TYGERBERG HOSPITAL**
CORNELIUS JANSE ENGELBRECHT, GERALD SISSOLAK
(Abstract Nr 17)

17h30-17h45 **THE USE OF MICROSCOPIC HEMATURIA TO EXCLUDE INVASION OF THE URINARY BLADDER BY CERVICAL CARCINOMA CAN REDUCE THE NEED FOR STAGING CYSTOSCOPY**
ADRIAAN VLOK, ANDRE VAN DER MERWE
(Abstract Nr 18)

17h45-18h00 **QUESTIONS AND DISCUSSION**

POSTERS / PLAKKATE

1. **FIRST REPORT OF THE LOCATION OF ATM PROTEIN WITHIN RAT HEART MITOCHONDRIA**
   MARGUERITE BLIGNAUT, BARBARA HUISAMEN
   (Abstract Nr 19)

2. **FIXED-DOSE ANTIRETROVIRAL THERAPY COMBINATION (TDF, FTC AND EFV) EXERTS CARDIOPROTECTION IN A RAT MODEL OF OBESITY**
   FRANS PIETER EVERSON, AMANDA GENIS, TOPE OGUNDIPE, HANS STRIJDOM
   (Abstract Nr 20)

3. **INVESTIGATING THE THERAPEUTIC POTENTIAL OF CANNABINOIDS IN THE TREATMENT OF MYOCARDIAL ISCHEMIA/REPERFUSION INJURY**
   MUGAMMAD EBRAHIM SAMODIEN, ANEL BOTHA, JOHN LOPES
   (Abstract Nr 21)

4. **FERMENTED AND UNFERMENTED ROOIBOS (ASPALATHUS LINEARIS) MODULATES VASCULAR FUNCTION AND ANTIOXIDANT CAPACITY IN NICOTINE EXPOSED WISTAR RATS**
   MICHELLE SMIT-VAN SCHALKWYK, SHANTAL WINDVOGEL, HANS STRIJDOM
   (Abstract Nr 22)

5. **INVESTIGATING THE EFFECTS OF LIFESTYLE AND DIETARY HABITS ON BODY COMPOSITION AND THE DEVELOPMENT OF TYPE 2 DIABETES IN XHOSA REPRODUCTIVE AGED FEMALES.**
   A. SEBOKO, M. EAGER, J. HELLIG, E. PRETORIUS, MM. CONRADIE, J. LOPES, W.F. FERRIS, M. VAN DE VYVER
   (Abstract Nr 23)

6. **THE IRON STATUS OF A HEALTHY SOUTH AFRICAN ADULT POPULATION**
   NASHEEN NAIDOO, DINEO PHATLHANE, ANNALISE ZEMLIN, MARIZA HOFFMANN, TANDI MATSHA, FRANCOIS SMIT, RAJIV ERASMUS
   (Abstract Nr 24)

7. **THIAMINE DEFICIENCY NEUROPATHY WITH SENSORY ATAXIA**
   TIWONGE KHONJE PHIRI
   (Abstract Nr 25)

8. **EVALUATION OF GERMLINE WHOLE EXOME SEQUENCING TO DETECT DRIVER MUTATIONS IN BREAST CANCER PREDISPOSITION GENES.**
   ARMAND PEETERS, MARITHA KOTZE
   (Abstract Nr 26)

9. **HODGKIN LYMPHOMA INCIDENCE AND SUBTYPES AT TYGERBERG ACADEMIC HOSPITAL, WESTERN CAPE, 2003-2014**
   NASHEEN NAIDOO, AKIN ABAYOMI, FATIMA BASSA, NOOROUDIEN MOHAMED, FUNGAI MUSAIGWA, RAVNIT GREWAL
   (Abstract Nr 27)

10. **THE IMPACT OF CMV ANTIVIRAL PROPHYLAXIS ON THE NUMBER OF CASES OF KAPOSI SARCOMA AND PATTERN OF MALIGNANCIES IN KIDNEY TRANSPLANT RECIPIENTS AT TYGERBERG ACADEMIC HOSPITAL**
    JULIETTE MORROW
    (Abstract Nr 28)

11. **MOLECULAR DIAGNOSIS OF X-LINKED CHRONIC GRANULOMATOUS DISEASE IN A TUBERCULOSIS ENDEMIC REGION**

MARLO MÖLLER, GLENDA DURRHEIM, BRIGITTE GLANZMANN, NIKOLA SCHLECHTER, ERIC BANDA, RINA NORTJE, MARDELLE SCHOEMAN, EILEEN HOAL, MICHAEL URBAN, MONIKA ESSER, CRAIG KINNEAR
(Abstract Nr 29)

12. **THE EFFECTS OF FIRST LINE AND SECOND LINE ANTIRETROVIRAL DRUGS ON VASCULAR ENDOTHELIAL FUNCTION - A CLINICAL STUDY OF A POPULATION IN WORCESTER.**
SANA CHARANIA, NYIKO MASHELE, AMANDA GENIS, M. FAADIEL ESSOP, INGRID WEBSTER, CORLI WESTCOTT, FRANS EVERSON, HAMEER VANMALI, HANS STRIJDOM
(Abstract Nr 30)

13. **TNFA RS1800629 MODIFIES THE ASSOCIATION BETWEEN PHYSICAL ACTIVITY AND CARDIOVASCULAR RISK IN SOUTH AFRICAN INDIVIDUALS INCLUDED IN A CHRONIC DISEASE SCREENING PROGRAM**
HILMAR KLAUS LUCKHOFF, LIZE VAN DER, MARITHA KOTZE, SUSAN JANSE VAN RENSBURG
(Abstract Nr 31)

14. **BODY COMPOSITION OF AFFECTED AND NON-AFFECTED SIDES IN PARALYMPIC ATHLETES WITH CEREBRAL PALSY**
PHOEBE RUNCIMAN
(Abstract Nr 32)

15. **DESCRIPTIVE OUTCOMES OF COMPUTER ASSISTED AUSCULTATION DURING A ROUTINE CARDIAC PRE-PARTICIPATION SCREENING IN COLLEGIATE ATHLETES**
JEANDRE THEUNIS VILJOEN, PIERRE VIVIERS, JO-ANNE KIRB
(Abstract Nr 33)

16. **CARDIAC TAMPONADE DUE TO HYPOTHYROIDISM: A CLUSTER OF CASES**
ANKIA COETZEE
(Abstract Nr 34)

17. **STATE OF THE ART WORK UP OF PITUITARY CUSHING'S DISEASE IN SA**
BRYNNE ASCOTT-EVANS, ELMO PRETORIUS
(Abstract Nr 35)

18. **PRIMARY HYPOPHYSITIS: A CASE SERIES**
LIESEL RADEMAN, ELMO PRETORIUS, MAGDA CONRADIE
(Abstract Nr 36)

19. **UNROOFED CORONARY SINUS DEFECTS (CSD) – THE ADDED VALUE OF MULTIMODALITY IMAGING**
ANNARI VAN RENSBURG, ANTON FRANS DOUBELL, CHARLES GEORGE KYRIAKAKIS, HELLMUTH STEPHAN VON HEYDERHOFF WEICH, JACQUES JANSON, JANE MOSES, NTOBEKO NTUSI
(Abstract Nr 37)

20. **SPECKLE TRACKING ECHOCARDIOGRAPHY IN ACUTE LUPUS MYOCARDITIS: COMPARISON TO CONVENTIONAL ECHOCARDIOGRAPHY**
RIETTE DU TOIT, PHILLIP G HERBST, ANNARI VAN, LISA DU PLESSIS, HELMUTH REUTER, ANTON F DOUBELL
(Abstract Nr 38)

21. **THE INFLUENCE OF SECOND-HAND CIGARETTE SMOKE EXPOSURE DURING CHILDHOOD AND ACTIVE CIGARETTE SMOKING ON CROHN'S DISEASE**

PHENOTYPE DEFINED BY THE MONTREAL CLASSIFICATION SCHEME IN A WESTERN CAPE POPULATION, SOUTH AFRICA
ABIGAIL BASSON, TAWANDA CHIVESE, TONYA ESTERHUIZEN
(Abstract Nr 39)

22. **INTRAVENOUS TPA FOR ACUTE ISCHEMIC STROKE AFTER DELIVERY**
MOHAMED KHIDER
(Abstract Nr 40)

23. **INVESTIGATION OF VITAMIN B12 AND FOLATE STATUS AT A TERTIARY HEALTH CARE CENTRE IN SOUTH AFRICA**
NAWAAL DAVIDS
(Abstract Nr 41)

Theme 5 / Tema 5

Mental Health and Neurosciences/Geestesgesondheid en Neurowetenskappe

JN DE VILLIERS BOARDROOM / JN DE VILLIERS RAADSAAL

Welcome 10h45-11h00: Ms Debbie Marais

FIRST SESSION / EERSTE SESSIE (JN de Villiers Boardroom / JN de Villiers Raadsaal)

Session Chair / Sessie Voorsitter: Ms Debbie Marais

11h00-11h15 **ANTI-DEPRESSANTS FOR TREATMENT OF DEPRESSION IN HIV-INFECTED PEOPLE: A COCHRANE SYSTEMATIC REVIEW**
INGRID ESHUN-WILSONOVA ET AL.
(Abstract Nr 1)

11h15-11h30 **INVESTIGATION OF DIFFERENTIAL GENE EXPRESSION IN PARKINSON'S DISEASE PATIENTS: A WHOLE TRANSCRIPTOME APPROACH**
GENEVIE BORRAGEIRO ET AL.
(Abstract Nr 2)

11h30-11h45 **ABNORMAL ACTIVITY RELATED TO REWARD OUTCOME IN THE ORBITO-FRONTAL CORTEX IN PARKINSON'S DISEASE IN THE CONTEXT OF NORMAL AGING**
STEFAN DU PLESSIS ET AL.
(Abstract Nr 3)

F-18 FDG-PET AND FMRI BASED CONNECTIVITY ANALYSIS OF THE POSTERIOR CINGULATE CORTEX/PRECUNEUS IN SOCIAL ANXIETY DISORDER
ALEXANDER DORUYTER ET AL.
(Abstract Nr 4)

11h45-12h30 **LUNCH** (Foyer between Lecture Hall 11 and 12) and **POSTER DISCUSSIONS**

MAIN PROGRAMME / HOOFPROGRAM (Lecture Hall 11)

12h30-13h00 **DEAN'S ADDRESS**

13H00-13h15 Introduction of the **GUEST SPEAKER**

13h15-14h00 **GUEST SPEAKER -** Prof Bongani Mayosi, Dean Designate: Faculty of Health Sciences, UCT
Title: *"60 Years of Health Research at Stellenbosch University: Profile and Impact*

14h00-14h30: **TEA AND POSTER DISCUSSIONS**

SECOND SESSION / TWEEDE SESSIE (JN de Villiers Boardroom / JN de Villiers Raadsaal)

Session Chair / Sessie Voorsitter: Dr Inge Smit

14h30-15h00 **STATE OF THE ART PRESENTATION 5 – DR FELIX POTOCNIK**

Title: *Travelling with dementia*

15h00-15h15 **INVESTIGATING DIFFERENTIAL EXPRESSION IN PTSD PATIENTS VERSUS CONTROLS: AN RNA-SEQ STUDY**
LAETITIA DICKS ET AL.
(Abstract Nr 5)

15h15-15h30 **A NOVEL VARIANT (P.Q2089R) FOUND IN A SOUTH AFRICAN PARKINSON'S DISEASE PATIENT AFFECTS MITOCHONDRIAL FUNCTION IN TWO CELLULAR MODELS**
ANNIKA NEETHLING ET AL.

(Abstract Nr 6)

INVESTIGATION OF MITOCHONDRIAL DYSFUNCTION IN PARKIN-MUTANT FIBROBLASTS FROM PARKINSON'S DISEASE PATIENTS

WILLIAM HAYLETT ET AL.

(Abstract Nr 7)

15h30-15h45 **REWARD IN GAMBLING DISORDER: PRELIMINARY FINDINGS OF NEUROCOGNITIVE ASSESSMENTS.**
LIAN TALJAARD ET AL.
(Abstract Nr 8)

15h45-16h00 **AN EXPLORATION OF PATIENTS' EXPERIENCES OF THE VALUE OF AN OCCUPATIONAL THERAPY OUTPATIENT CRAFT GROUP.**
MICHELLE UYS ET AL.
(Abstract Nr 9)

16h00-16h15 **EFFECT OF EXERCISE ON FITNESS MEASURES, DEPRESSION, ANXIETY AND QUALITY OF LIFE IN PATIENTS WITH PREVIOUS METHAMPHETAMINE DEPENDANCY: A SYSTEMATIC REVIEW**
ANÉ RAS ET AL.
(Abstract Nr 10)

16h15-16h30 **PROSPECTIVE INTER-EPISODAL MOOD MONITORING IN PATIENTS WITH BIPOLAR DISORDER**
ALBERTA VAN DER WATT ET AL.
(Abstract Nr 11)

16h30-16h45 **TEA AND POSTER DISCUSSIONS**

POSTERS / PLAKKATE

1. **TRAUMA TYPE AS A RISK FACTOR FOR PTSD IN A REFERRED CLINIC SAMPLE OF ADOLESCENTS.**
   Jani Nöthling et al.
   (Abstract Nr 12)

2. **EXPERIENCES OF ADOLESCENTS RECEIVING A PSYCHOTHERAPEUTIC TASK SHIFTING INTERVENTION FOR PTSD IN A COMMUNITY SETTING.**
   Tanya van de Water et al.
   (Abstract Nr 13)

3. **NEUROCOGNITIVE PERFORMANCE IN ADOLESCENTS WITH HIGH AND LOW LEVELS OF BOTH ANXIETY PRONENESS AND CHILDHOOD TRAUMA.**
   Lindi Martin et al.
   (Abstract Nr 14)

4. **PROFESSIONALS' AND PATIENTS' PERSPECTIVES TOWARDS DISCLOSING INCIDENTAL FINDINGS OF PLEIOTROPIC RESULTS: PRELIMINARY FINDINGS FROM AN ONLINE SURVEY DISTRIBUTED TO STUDENTS.**
   Jacqui Steadman et al.
   (Abstract Nr 15)

5. **CROSS-CULTURAL ASSESSMENT OF HIV-ASSOCIATED NEUROCOGNITIVE IMPAIRMENT USING THE KAUFMAN ASSESSMENT BATTERY FOR CHILDREN: A SYSTEMATIC REVIEW.**
   Kaylee Shiela van Wyhe et al.
   (Abstract Nr 16)

6. **CHANGES IN COGNITIVE FUNCTION IN WOMEN WITH HIV INFECTION AND EARLY LIFE STRESS.**
   Georgina Spies et al.
   (Abstract Nr 17)

7. **PUBLICATION OF RANDOMISED CLINICAL TRIALS IN PTSD: A SYSTEMATIC REVIEW.**
   Sharain Suliman et al.
   (Abstract Nr 18)

8. **A PRELIMINARY INVESTIGATION INTO THE RELATIONSHIP BETWEEN SELF-PERCEIVED STRESS AND HEALTH AND FUNCTIONING IN SHARED ROOTS STUDY PARTICIPANTS.**
   Leigh van den Heuvel et al.
   (Abstract Nr 19)

9. **A PILOT STUDY TO EVALUATE A TARGETED RESEQUENCING APPROACH FOR IDENTIFICATION OF PATHOGENIC MUTATIONS IN SOUTH AFRICAN PARKINSON'S DISEASE PATIENTS.**
   Oluwafemi Oluwole et al.
   (Abstract Nr 20)

10. **HIPPOCAMPAL AND AMYGDALA VOLUMES IN ADULTS WITH POSTTRAUMATIC STRESS DISORDER SECONDARY TO CHILDHOOD ABUSE OR MALTREATMENT: A SYSTEMATIC REVIEW.**
    Fatima Ahmed et al.
    (Abstract Nr 21)

11. **DIFFERENCES IN QUALITY OF LIFE AND RESILIENCE IN PARAMEDIC TRAINEES BETWEEN ENROLMENT DATE AND THREE MONTHS FOLLOWING EXPOSURE TO WORK RELATED TRAUMA.**
    Erine Bröcker et al.
    (Abstract Nr 22)

12. **SUCCESS RATE WITH MRI NEUROIMAGING RESEARCH IN UN-SEDATED YOUNG HIV INFECTED CHILDREN USING SIMULATION SCAN PREPARATION.**
    Tanya van de Water et al.
    (Abstract Nr 23)

13. **EPIGENETIC-BRAIN IMAGING INVESTIGATION: ANXIETY SENSITIVITY IN SOUTH AFRICAN ADOLESCENTS.**
    Lyndon Zass et al.
    (Abstract Nr 24)

14. **GUT MICROBIOME PROFILE OF PTSD PATIENTS FROM A UNIQUE SOUTH AFRICAN POPULATION.**
    Stefanie Malan-Müller et al.
    (Abstract Nr 25)

15. **EFFECTS OF ESCITALOPRAM CHALLENGE ON WHITE MATTER INTEGRITY IN OBSESSIVE-COMPULSIVE DISORDER AND HEALTHY CONTROLS.**
    Annerine Roos et al.
    (Abstract Nr 26)

16. **DESCRIPTION OF THE ANTERIOR CEREBRAL ARTERY AND ITS CORTICAL BRANCHES: VARIATION IN PRESENCE, ORIGIN, AND SIZE.**
    Karen Cilliers et al.
    (Abstract Nr 27)

17. **REVIEW OF THE ANATOMY OF THE DISTAL ANTERIOR CEREBRAL ARTERY AND ITS ANOMALIES.**
    Karen Cilliers et al.
    (Abstract Nr 28)

18. **THE INFLUENCE OF CHILDHOOD TRAUMA, MAJOR DEPRESSIVE DISORDER AND HIV-ASSOCIATED NEUROCOGNITIVE DISORDERS ON TELOMERE LENGTH**
    Jacqueline S Womersley et al.
    (Abstract Nr 29)

19. **CLINICAL OUTCOMES IN PATIENTS WITH ALCOHOL AND/OR COCAINE USE DEPENDENCE IN A REHABILITATION PROGRAMME**
    SY Young et al.
    (Abstract Nr 30)

20. **INVESTIGATING THE EFFECTS OF ALCOHOL ON THE GUT MICROBIOME**
    Chane Bain et al.
    (Abstract Nr 31)

Theme 6 / Tema 6

Perioperative Sciences/ Perioperatiewe Wetenskappe
Lecture Hall 5 / Lesingsaal 5

11h45-12h30 **LUNCH** (Foyer between Lecture Hall 11 and 12) and **POSTER DISCUSSIONS**

MAIN PROGRAMME / HOOFPROGRAM (Lecture Hall 11)

12h30-13h00 **DEAN'S ADDRESS**

13H00-13h15 Introduction of the **GUEST SPEAKER**

13h15-14h00 **GUEST SPEAKER -** Prof Bongani Mayosi, Dean Designate: Faculty of Health Sciences, UCT
Title: *"60 Years of Health Research at Stellenbosch University: Profile and Impact*

14h00-14h30: **TEA AND POSTER DISCUSSIONS**

FIRST SESSION / EERSTE SESSIE (Lecture Hall 5)
Session Chair / Sessie Voorsitter: Prof RP Lamberts & Prof I Vlok

14h30-15h00 **STATE OF THE ART PRESENTATION 6 - PROF IAN VLOK**
Title: *Sunskill – the future of surgical simulation training?*

15h00-15h15: **TREATMENT OF IDIOPATHIC HYDROCELES: A PROSPECTIVE, RANDOMISED COMPARISON BETWEEN SURGICAL HYDROCELECTOMY (SH) AND ASPIRATION SCLEROTHERAPY (AS) WITH PURIFIED MINERAL TALC**
PV SPIES
(Abstract Nr 1)

15h15-15h30: **SURGERY FOR BRONCHIECTASIS IN HIV POSITIVE CHILDREN: INDICATIONS, COMPLICATIONS AND OUTCOME**
H PEENS-HOUGH, J JANSON, P GOUSSARD
(Abstract Nr 2)

15h30-15h45: **A COMPARISON OF FOUR METHODS OF ENDOTRACHEAL TUBE PASSAGE IN SIMULATED AIRWAYS - IS THERE ROOM FOR IMPROVED TECHNIQUES?**
K KINGMA, R HOFMEYR, I ZENG, C COOMARASAMY, A BRAINARD
(Abstract Nr 3)

15h45-16h00: **STUDY ON THE CLINICAL IMPLICATIONS OF THE SCIATIC NERVE DIVISION ON THE POPLITEAL NERVE BLOCK**
CR MADY-GOMA, V TCHOKONTE-NANA
(Abstract Nr 4)

16h00-16h15: **TREATING UNSTABLE WEBER C ANKLE FRACTURES IN ADULTS WITH AN INTRAMEDULLARY LOCKED FIBULA NAIL: SHORT-TERM CLINICAL, RADIOLOGICAL AND FUNCTIONAL OUTCOMES**
E JOUBERT, A IKRAM, RP LAMBERTS
(Abstract Nr 5)

16h15-16h30: **A PROSPECTIVE, RANDOMIZED CONTROLLED STUDY COMPARING LOCKED INTRAMEDULLARY NAILING OF DISTAL RADIUS FRACTURES TO LOCKED VOLAR PLATING**
M VAN DER KAAG, IPS TERBLANCHE, RP LAMBERTS
(Abstract Nr 6)

16h30-16h45 **TEA AND POSTER DISCUSSIONS**

SECOND SESSION / TWEEDE SESSIE (Lecture Hall 5)

Session Chair / Sessie Voorsitter: Prof RP Lamberts & Prof I Vlok

16H45 -17h00: **COMPARISON OF A LOW-COST HOME UROFLOW METER (UROWATCH) AND THE ELECTRONIC DANTEC URODYN 1000 UROFLOW**
CM MEINTJES
(Abstract Nr 7)

17h00 – 17-15: **A REVIEW OF THE FIRST 22 EXTRAPERITONEAL LAPAROSCOPIC RADICAL PROSTATECTOMIES PERFORMED AT TYGERBERG HOSPITAL, SOUTH AFRICA**
K DU TOIT, HM ACKERMANN, A VAN DER MERWE
(Abstract Nr 8)

17h15-17h30: **PARENTERAL GLUTAMINE SUPPLEMENTATION IN CRITICALLY ILL ADULTS: AN APPROACH TO SUPPORT EVIDENCE-INFORMED DECISION-MAKING BY A NATIONAL ESSENTIAL MEDICINES LIST (EML) EXPERT REVIEW COMMITTEE**
CE NAUDE, L NICOL
(Abstract Nr 9)

17h30-17h45 **QUESTIONS AND DISCUSSION**

POSTERS / PLAKKATE

NONE

Theme 7 / Tema 7

Maternal and Child Health / Moeder en Kind Gesondheid
Lecture Hall 12 / Lesingsaal 12

Welcome 08h45-09h00: TBA

FIRST SESSION / EERSTE SESSIE (Lecture Hall 12)

Session Chair / Sessie Voorsitter: TBA

09h00-09h15 **AN INVESTIGATION INTO ISIXHOSA- AND KAAPS-SPEAKING GRADE TWO LEARNERS' SYMBOL PREFERENCE AND INTERPRETATION OF 25 COMMON NOUNS**
MARONE COAD, HESTER HELENA KRIEL, JOLANE VAN NIEKERK
(Abstract Nr 1)

09h15-09h30 **HOW LONG DO DOCTORS SPEND, PER PATIENT, CARING FOR CHILDREN PRESENTING TO THE EMERGENCY CENTRE?**
ANDREW REDFERN, ROBERT STELLMAN, ANTHONY HAWKRIDGE, BALJIT CHEEMA
(Abstract Nr 2)

09h30-09h45 **THE IMPACT OF HOUSEHOLD ENVIRONMENTAL TOBACCO SMOKE EXPOSURE ON RISK OF TB INFECTION IN CHILDREN WITH HOUSEHOLD TB EXPOSURE**
K DU PREEZ, K KRANZER, AM MANDALAKAS, AC HESSELING
(Abstract Nr 3)

09h45-10h00 **GENEXPERT MTB/RIF ON STOOL IS USEFUL FOR THE RAPI DIAGNOSIS OF PULMONARY TUBERCULOSIS IN CHILDREN WITH SEVERE DISEASE**
ELISABETTA WALTERS, ANDREW WHITELAW , ANNE-MARIE DEMERS, ANNEKE C HESSELING, CORNE BOSCH, HEATHER R DRAPER, HENDRIK S SCHAAF, MARIEKE VAN DER ZALM, MEGAN PALMER, PIERRE GOUSSARD, ROBERT P GIE, ROBIN M WARREN, SVEN O FRIEDRICH
(Abstract Nr 4)

10h00-10h15 **TEA AND POSTER DISCUSSIONS**

SECOND SESSION / TWEEDE SESSIE (Lecture Hall 12)
Session Chair / Sessie Voorsitter: TBA

10h15-10h30 **FEASIBILITY OF A NOVEL HANDHELD LUNG FUNCTION DEVICE IN CHILDREN INVESTIGATED FOR PULMONARY TUBERCULOSIS: A PILOT STUDY**
MARIEKE MARGREET VAN DER ZALM , ROBERT PETER GIE, MEGAN PALMER, ELISABETTA WALTERS, PIERRE GOUSSARD, ANNEKE CATHERINA HESSELING
(Abstract Nr 5)

10h30-10h45 **UNEXPECTED FINDINGS IN AN OPEN LUNG BIOPSY STUDY IN A**

MIDDLE-INCOME COUNTRY
ANDRE GIE, JACQUE JANSEN, JULIE MORRISON, PAWEL SCHUBERT, PIERRE GOUSSARD, ROBERT GIE, SHARON KLING
(Abstract Nr 6)

10h45-11h00 **EFFECT OF CO-ADMINISTRATION OF LIGNOCAINE ON PAIN AND PHARMACOKINETICS OF INTRAMUSCULAR AMIKACIN IN CHILDREN WITH MULTIDRUG-RESISTANT TUBERCULOSIS**
ANTHONY J. GARCIA-PRATS, PENELOPE C. ROSE, HEATHER R. DRAPER, JAMES A. SEDDON, JENNIFER NORMAN. HELEN M. MCILLERON, ANNEKE C. HESSELING, H. SIMON SCHAAF
(Abstract Nr 7)

11h00-11h15 **SAFETY AND TOLERABILITY OF LEVOFLOXACIN IN HIV-INFECTED AND – UNINFECTED CHILDREN TREATED FOR MULTIDRUG-RESISTANT TUBERCULOSIS**
ANTHONY J. GARCIA-PRATS , HEATHER R. DRAPER, HEATHER FINLAYSON, JANA WINCKLER, ANDRE BURGER, H. SIMON SCHAAF, ANNEKE C. HESSELING
(Abstract Nr 8)

11h15-11h30 **ADVERSE DRUG REACTIONS IN PAEDIATRIC IN-PATIENTS IN A SOUTH AFRICAN TERTIARY HOSPITAL: A PROSPECTIVE OBSERVATIONAL STUDY**
MEMELA MAKIWANE
(Abstract Nr 9)

11h30-11h45 **BURDEN, SPECTRUM AND IMPACT OF HEALTHCARE-ASSOCIATED INFECTION AT A SOUTH AFRICAN CHILDREN'S HOSPITAL**
ANGELA DRAMOWSKI, ANDREW WHITELAW, MARK F. COTTON
(Abstract Nr 10)

11h45-12h00 **THE COST EFFECTIVENESS OF TREATING PAEDIATRIC CANCER IN SOUTH AFRICA: A REVIEW OF TREATMENT COST FOR BURKITT**
CHANÉ KAY, ANEL VAN ZYL, CRISTINA STEFAN
(Abstract Nr 11)

12h00-12h30 **LUNCH** (Foyer between Lecture Hall 11 and 12) and **POSTER DISCUSSIONS**

MAIN PROGRAMME / HOOFPROGRAM (Lecture Hall 11)

12h30-13h00 **DEAN'S ADDRESS**

13H00-13h15 Introduction of the **GUEST SPEAKER**

13h15-14h00 **GUEST SPEAKER -** Prof Bongani Mayosi, Dean Designate: Faculty of Health Sciences, UCT
Title: *"60 Years of Health Research at Stellenbosch University: Profile and Impact*

14h00-14h30: **TEA AND POSTER DISCUSSIONS**

THIRD SESSION / DERDE SESSIE (Lecture Hall 12)
Session Chair/ Sessie Voorsitter: Dr Judith Kluge

14h30-15h00 **STATE OF THE ART PRESENTATION 7 – DR GS GEBHARDT**

Title: *Obstetric litigation in the Western Cape, South Africa: an analysis of public sector professional liability claims from 1995-2014*

15h00-15h15 **MANAGEMENT OF FIRST TRIMESTER MISCARRIAGE IN A TERTIARY HOSPITAL IN CAPE TOWN, SOUTH AFRICA – A PROSPECTIVE OBSERVATIONAL STUDY**
ANNE BREIDENTHAL, JUDY KLUGE
(Abstract Nr 12)

15h15-15h30 **ECHOCARDIOGRAPHIC ASSESSMENT OF LEFT VENTRICULAR FUNCTION IN PRE-ECLAMPSIA COMPLICATED BY PULMONARY OEDEMA – EARLY FINDINGS FROM THE LV IMPACT STUDY**
BRADLEY GRIFFITHS, ANTON DOUBELL, BRADLEY GRIFFITHS, EDUARD LANGENEGGER, PHILIP HERBST
(Abstract Nr 13)

15h30-15h45 **INVESTIGATING THE DIAGNOSIS OF GESTATIONAL DIABETES: A DESIGNER BREAKFAST PUT TO THE TEST.**
COLIN MARAIS, LOURENTIA V WYK, M CONRADIE
(Abstract Nr 14)

15h45-16h00 **GALACTOGOGUES: A CROSS-SECTIONAL DESCRIPTIVE STUDY AMONG PATIENTS VISITING INTERNATIONAL BOARD CERTIFIED LACTATION CONSULTANT PRIVATE PRACTICES IN CAPE TOWN**
NINA STEYN, ERIC H. DECLOEDT, MOLEEN ZUNZA
(Abstract Nr 15)

16h00-16h15 **RETINOPATHY OF PREMATURITY SCREENING CRITERIA AND WORK LOAD IMPLICATIONS AT TYGERBERG CHILDREN'S HOSPITAL, SOUTH AFRICA: A CROSS-SECTIONAL STUDY**
ELSIME VISSER KIFT
(Abstract Nr 16)

16h15-16h30 **KNOWLEDGE ABOUT NEONATAL JAUNDICE IN POSTNATAL MOTHERS AT TYGERBERG HOSPITAL, SOUTH AFRICA**
ANELA VOLOFU, CHARLES I. OKWUNDU
(Abstract Nr 17)

16h30-16h45 **TEA AND POSTER DISCUSSIONS**

FOURTH SESSION / VIERDE SESSIE (Lecture Hall 12)
Session Chair/ Sessie Voorsitter: TBA

16h45-17h00 **INTENSIFIED PMTCT INFLUENCES THE RATE AND EVENTUAL OUTCOME OF INDETERMINATE HIV-1 PCR RESULTS**
JAYSHREE MAHARAJ, JEAN MARITZ, WOLFGANG PREISER, JEAN MARITZ
(Abstract Nr 18)

17h00-17h15 **MALNUTRITION-RELATED MORBIDITY AND MORTALITY IN HIV-EXPOSED INFANTS OF MOTHERS ENROLLED IN THE PMTCT PROGRAMME AT A NAMIBIAN DISTRICT HOSPITAL: THE ROLE OF INFANT FEEDING PRACTICES**
CASPER F.C. TARUMBWA, CELESTE E. NAUDE LISANNE M. DU PLESSIS, LYNETTE S. MAKURA

(Abstract Nr 19)

17h15-17h30 **LONG TERM NEURODEVELOPMENTAL OUTCOMES ON EARLY LIMITED OR DEFERRED CONTINUOUS ANTIRETROVIRAL THERAPY: EVIDENCE FROM THE CHER TRIAL**
BARBARA LAUGHTON, MORNA CORNELL, MARTIN KIDD, PRISCILLA E SPRINGER, HILDA HENRIETTE SAUNDERS, ELS DOBBELS, ANITA JANSE VAN RENSBURG, KENNEDY OTWOMBE ABDEL BABIKER, DIANA M GIBB, AVY VIOLARI, MARIANA KRUGER, MARK F COTTON)
(Abstract Nr 20)

17h30-17h45 **QUESTIONS AND DISCUSSION**

POSTERS / PLAKKATE

1. **EXPLORING STAKEHOLDER COMMITMENT AND CAPACITY TO ADDRESS INFANT AND YOUNG CHILD NUTRITION IN THE CAPITAL OF THE BREEDE VALLEY, WESTERN CAPE PROVINCE, SOUTH AFRICA**
   LISANNE M. DU PLESSIS
   (Abstract Nr 21)

2. **MANAGING CHILDHOOD TB IN A HIGH BURDEN DISTRICT IN SOUTH AFRICA: GETTING THE BASICS RIGHT**
   LIENKI DU PLESSIS
   (Abstract Nr 22)

3. **TB KIDS E-TRAINING: OPERATIONAL IMPLEMENTATION OF THE UNION'S ONLINE CHILDHOOD TB COURSE FOR HEALTH CARE WORKERS IN SOUTH AFRICA.**
   LIENKI DU PLESSIS
   (Abstract Nr 23)

4. **KEEPING KIDS IN CARE: AN OBSERVATIONAL STUDY DESCRIBING CUMULATIVE PROGRAMME FAILURE IN A PAEDIATRIC ARV CLINIC AND THE ROLE STAKEHOLDERS COULD PLAY IN IMPROVING TREATMENT OUTCOMES**
   SUSAN ELIZABETH PURCHASE
   (Abstract Nr 24)

5. **CLINICAL CHARACTERISTICS AND DIAGNOSTIC PRACTICES OF CHILD TUBERCULOSIS CASES MANAGED AT A HIGH BURDEN, DISTRICT LEVEL HOSPITAL IN CAPE TOWN, SOUTH AFRICA.**
   LIENKI DU PLESSIS
   (Abstract Nr 25)

6. **A DESCRIPTIVE PROFILE OF PRIMARY CAREGIVERS OF HIV-INFECTED CHILDREN IN THE WESTERN CAPE, SOUTH AFRICA**
   NATASHA JOOSTE
   (Abstract Nr 26)

7. **AN EXPLORATORY STUDY ON ADHERENCE TO EXCLUSIVE BREASTFEEDING WITH ANTIRETROVIRAL THERAPY INTERVENTION AMONG HIV-INFECTED MOTHERS IN SOUTH AFRICA AND NIGERIA.**
   JUDY GATEI
   (Abstract Nr 27)

8. **VERY LOW UPTAKE OF ROUTINE INFANT DIAGNOSTIC TESTING FOLLOWING HIV PCR TESTING AT BIRTH**
   JEAN MARITZ
   (Abstract Nr 28)

9. **FAVOURABLE OUTCOME IN A CHILD WITH GLUTARIC ACIDURIA AND HIV INFECTION**
   ANGELINE THOMAS
   (Abstract Nr 29)

10. **HIV ENCEPHALOPATHY WITH BILATERAL LOWER LIMB SPASTICITY: UPPER LIMB MOTOR FUNCTION AND LEVEL OF ACTIVITY AND PARTICIPATION**
    THERESA N. MANN
    (Abstract Nr 30)

11. **IS GENOTYPING USEFUL IN NEONATAL DIABETES MELLITUS?**
    MICHELE GRANTHAM
    (Abstract Nr 31)

12. **INCIDENCE AND OUTCOMES OF PRIMARY MALIGNANT THORACIC NEOPLASMS**
    CARINE SMIT
    (Abstract Nr 32)

13. **PREDICTING THE RISK OF ADVERSE EVENTS IN CHILDREN WITH FEBRILE NEUTROPENIA: A VALIDATION OF PREVIOUSLY IDENTIFIED CLINICAL DECISION RULES**
    LINDY-LEE GREEN
    (Abstract Nr 33)

14. **A RETROSPECTIVE REVIEW OF THE OUTCOMES OF GASTROSCHISIS AT A TERTIARY HOSPITAL IN CAPE TOWN.**
    ANDREW VAN ECK
    (Abstract Nr 34)

15. **TRAJECTORY OF FASD ACROSS THE LIFESPAN: NEW UNDERSTANDINGS IN INTERVENTIONS**
    NERINA BESTER
    (Abstract Nr 35)

16. **THE SIGNIFICANCE OF ABSTINENCE IN BREASTFEEDING MOTHERS**
    NERINA BESTER
    (Abstract Nr 36)

17. **LONGITUDINAL STUDYING OF THE PHYSICAL FEATURES OF FETAL ALCOHOL SPECTRUM DISORDERS FROM NEWBORN TO 7 YEARS OF AGE IN THE TOWNS OF ROBERTSON AND ASHTON**
    ANDREA ENGELBRECHT
    (Abstract Nr 37)

18. **A COMPARISON OF DRINKING DATA REPORTED BY WOMEN ADMITTED TO CASE MANAGEMENT WITH DRINKING DATA REPORTED LATER IN A LONGITUDINAL STUDY**
    MARIA MAGDALENE DE VRIES
    (Abstract Nr 38)

19. **EXAMINING THE ROLE AND APPLICATION OF HYALURONIC ACID PRODUCT [PICSI DISH SPERM SELECTION] IN THE TREATMENT OF INFERTILITY**

L MAREE
(Abstract Nr 39)

20. **AN INVESTIGATION OF THE EFFECT OF DIFFERENT CO_2 INCUBATORS/INCUBATION METHODS ON ASSISTED REPRODUCTIVE TECHNOLOGY [ART] OUTCOMES.**
    NICOLE ASHLEY NEL
    (Abstract Nr 40)

21. **IODISED SALT AND IODINE SUPPLEMENTS FOR PRENATAL AND POSTNATAL GROWTH: A RAPID SCOPING OF EXISTING SYSTEMATIC REVIEWS**
    JESSICA FAREBROTHER
    (Abstract Nr 41)

22. **A RETROSPECTIVE REVIEW OF PAEDIATRIC CEREBRAL VENOUS SINUS THROMBOSIS IN A SOUTH AFRICAN TERTIARY HOSPITAL**
    HENDRIK SCHALK LIEBENBERG
    (Abstract Nr 42)

23. **GENETIC COUNSELLING FOR NON-INVASIVE PRENATAL TESTING: TWO-YEAR EXPERIENCE**
    MARDELLE SCHOEMAN
    (Abstract Nr 43)

ABSTRACTS / ABSTRAKTE

The contents of this section is published as received /
Die inhoud van hierdie afdeling is gepubliseer soos dit ontvang is

Theme 1 / Tema 1

Health Systems Strengthening/ Gesondheidsisteme Versterking

ORAL PRESENTATIONS / REFERATE

ABSTRACT NUMBER / ABSTRAKNOMMER: 1

THE VALUE OF SELF-DIRECTED LEARNING IN HEALTH PROFESSIONS EDUCATION: A SCOPING REVIEW

IAN COUPER (Centre for Health Professions Education)

Introduction: Self-directed learning (SDL) is suggested as a methodology for preparing health professionals to be lifelong learners, who will continually access information for safe practice. SDL is also an approach that could facilitate learning amongst students placed in decentralised sites on a distributed training platform. The aim of this study was understand the place of self-directed learning in health professions education, especially in relation to decentralised training and the development of lifelong learning. Methods: A scoping review of the literature was carried out. A literature search, primarily in the PubMed and ERIC databases, yielded 383 articles, of which 166 were included in the review. Key issues from articles were summarized in a spreadsheet that allowed for focused data collection on the main questions being addressed. Results: Articles were published from a wide range of countries, with medicine and nursing being the dominant professions under scrutiny. Most articles focused on undergraduate training. Findings suggest the major reason for using SDL was the promotion of lifelong learning, but there is no evidence for the effectiveness of SDL in developing lifelong learning. No explicit links were made to decentralised learning but the importance of a "real context" for SDL was described. Conclusions: Scaffolding for SDL needs to be developed, with mentoring by well-trained facilitators. The role and impact of SDL in specific clinical contexts where health professions education occurs, including decentralised training sites, requires more exploration

ABSTRACT NUMBER / ABSTRAKNOMMER: 2

SELF-REGULATORY FEEDBACK DURING CLINICAL SKILLS TRAINING

CHARMAIN VAN DER MERWE (Centre for Health Professions Education, SU);ELI BLITZR (Centre for Health Professions Education, SU); ELIZE ARCHER (Centre for Health Professions Education, SU)

Feedback is critical to learning, especially learning of clinical skills in simulation. There is evidence that students may not be satisfied with the feedback they receive and their performance may not improve due to feedback provided. Improved performance or a change in behaviour seems to be a key component of feedback. Guidelines for improvement of feedback often emphasise what the lecturer can do, not on what the student does. This implies the lecturer is able to observe all students performing their skills on numerous occasions, judging all of their performances. Such a lecturer-focused feedback model may not be feasible where the lecturer to student ratio is not 1:1. It may be necessary to adopt a more student-centred approach where the student is a self-regulated producer of his or her own feedback. Such a self-regulatory feedback model supports a socio-constructivist view on learning. The aim of this study was to determine how feedback was experienced by medical students and their lecturers, and how a self-regulatory feedback model could be implemented in a Clinical Skills Centre (CSC). This study followed an interpretative approach, using a case study design, with students and lecturers purposefully selected. Qualitative data were generated through observation of learning sessions, individual interviews with lecturers and focus group interviews with students. The findings indicate that students in the CSC receive information on their performance from lecturers and peers, but feedback opportunities may not be sufficient, possibly due to time limitations, increased student numbers and limited follow-up opportunities. A self-regulatory feedback model can be implemented within the CSC, where students can use standards of performance for self-evaluation. Students may then seek feedback from peers and lecturers, comparing all the information to help develop action plans to alter their behaviour, especially to perform these skills in future when no guidance is available.

ABSTRACT NUMBER / ABSTRAKNOMMER: 3

LESSONS LEARNT IN TEN YEARS OF EXTENDED DEGREE PROGRAMME

ALWYN LOUW (Centre for Health Professions Education, SU)

Background: Students which are selected for the Extended Degree Programme (EDP) at the Faculty of Medicine and Health Sciences Stellenbosch University generally do well during Phase 1 of the programme, but the consecutive phases following on Phase I are experienced as challenging with a number of these students experience academic problems. Faculty can react to this challenge by determining what could be done in the EDP programme to prepare these students adequately for the full academic programme. Aim: The unsuccessful progress of some EDP students in the consecutive years following the EDP programme necessitated a systematic investigation to determine the factors contributing to the lack of progress of these students. Focussed and systematic intervention could be launched if such factors could be identified. Methods: A retrospective quantitative and qualitative study including data of all EDP students since 2007 was done. Individual in-depth interviews were held with both successful and unsuccessful students as well as with relevant advisors of these students. Specific interventions were implemented and possible influences on results monitored. Results: Major problematic areas determined were these of Academic, Social, Psyche and Residence. Outstanding factors in these themes provide faculty with scientific data to react upon. Specific faculty interventions e.g. implementation of appropriate support modules and tailor made motivational sessions, seemed to have the necessary positive outcomes. Conclusion: Scientific research is essential to facilitate the process of determining crucial factors influencing student success. The knowledge provided by the research directs faculty to intervene specifically in different areas to optimise success at EDP students.

ABSTRACT NUMBER / ABSTRAKNOMMER: 4

FAMILY PHYSICIANS WITHIN THE SOUTH AFRICAN DISTRICT HEALTH system - IS OUR INFLUENCE TANGIBLE?

KLAUS VON PRESSENTIN (Family Medicine and Primary Care, SU); BOB MASH (Family Medicine and Primary Care, SU)

Context: International evidence support primary health care systems in which family physician-led teams provide primary care to their communities. South Africa made family medicine a new specialty in 2007. The first graduates from the nationally-aligned training programmes entered the district health services from 2011. The deployment of these family physicians occurred in a heterogeneous manner, with some provinces prioritising appointments at district level compared to facility or sub-district levels. In 2014, funding for a national study was obtained, which aimed to provide much-needed evidence to guide policy makers and managers on how best to employ family physicians and whether their contribution matches the international evidence. This EuropeAid-funded project included Stellenbosch University and the family medicine departments in South Africa. Objectives: This presentation will focus on two components of the applied research on evaluating the impact of family physicians within the district health system of seven South African provinces: a quasi-experimental study to compare facilities with family physicians to matched, unexposed facilities and a 360-degree evaluation of family physicians by their co-workers. The 360-degree evaluation tool is based on the six agreed roles of the family physician. Methods: In the quasi-experimental study,

facility-level data were collected from 30 intervention and 30 control facilities, using a number of instruments. A validated 360-degree evaluation tool was used to survey the perceived impact of family physicians across 51 facilities in 7 provinces. Results: Data collection was completed in March 2016. At the time of writing this abstract, the database is being finalised in consultation with the biostatistics unit. Results will be available in July 2016. Conclusions: This research evaluates the contribution of family physicians to strengthening the district health services of South Africa. The findings will enhance our understanding of this discipline's contribution to health care in South Africa and the African region.

ABSTRACT NUMBER / ABSTRAKNOMMER: 5

ENHANCING EVIDENCE-BASED HEALTH CARE (EBHC) TEACHING AND LEARNING FOR UNDERGRADUATE MEDICAL STUDENTS AT THE FACULTY OF MEDICINE AND HEALTH SCINECES, STLLENBOSCH UNIVERSITY: 2010-2015

ANKE ROHWER (centre for evidence-based health care, SU); tarryn young (centre for evidence-based health care, SU); anel schoonees (centre for evidence-based health care, SU); eleanor ochodo (centre for evidence-based health care, SU)

Background EBHC is a systematic approach to clinical problem-solving which allows the integration of best available research evidence with clinical expertise and patient values. From 2010-2015 the EBHC subproject of the Stellenbosch University Rural Medical Education Partnership Initiative (SURMEPI) worked on enhancing EBHC teaching and learning for medical students. Methods In 2011 and 2012 we conducted a comprehensive situational analysis , to take stock of what was covered in the undergraduate medical curriculum. Results showed that throughout the 6 year programme, EBHC teaching and learning was fragmented and not integrated into clinical rotations. To complement the situational analysis, we conducted further research to inform EBHC teaching and learning. Based on our findings, we developed and implemented enhanced EBHC teaching from 2014: In the pre-clinical years the foundation of EBHC is laid by introducing the value of EBHC, basic epidemiology and biostatistics in theoretical modules. Methods include didactic lectures with practical examples and exercises, with assessment. In the clinical years EBHC teaching comprises discipline specific, clinically integrated EBHC learning during clinical rotations to cover identification of knowledge gaps linked to patients, phrasing clear questions, searching for best evidence, critically appraising and interpreting evidence of various study designs, and considering the application of findings. Online resources are used for self-directed learning. Results The use of the situational analysis and further research to inform enhancements in the curriculum was fundamental. Other aspects that worked well included involving module convenors and clinicians, clearly pre-defining learning outcomes, interactive small group sessions, practical application, faculty development and having a dedicated team driving the implementation. Bedside learning of EBHC with role modelling in the clinical field remains a challenge. Conclusion The enhanced EBHC teaching and learning approach has successfully been implemented and was well received. Continuous evaluation to improve our offering was very helpful.

ABSTRACT NUMBER / ABSTRAKNOMMER: 6

THE STATE OF NEUROLOGICAL TRAINING IN MEDICAL SCHOOLS: A GLOBAL PERSPECTIVE

BRAD HARRINGTON (Neurosurgery, SU); David Roytowski (Neurosurgery, SU); Ian Vlok (Neurosurgery, SU)

Introduction Neurosurgical emergencies constitute approximately 18% of all hospital admissions in the developed world. Less than 0.3% of the medical school curriculum is reserved for neurosurgical education. The relatively high incidence of morbidity and mortality of neurosurgical disease necessitates a focus on neurosurgery as an essential facet of medical training. The purpose of this study was to prospectively assess the base level of neurosurgical knowledge in interns from multiple countries and determine if any correlation between length of the neurosurgical curriculum and tests scores exist. Methods A standardized 10-question multiple-choice examination was conducted with medical interns in several countries. . Anatomy, physiology, image interpretation and clinical based scenarios were tested. Examinations were performed in a simulated environment, and the cores calculated. Interns were classified into groups based on their current hospital, year of graduation, university attended, length of neurosurgical rotations at their institutions and previous neurosurgical experience. A statistical analysis was performed comparing examination scores to curriculum length. Results 767 interns from 11 countries and 57 universities participated in the study. The mean length of their neurosurgical curriculum was 2.2 weeks. The mean score achieved in the examination was 42%. 325 (42.3%) interns had an examination score of less than 50% and no intern scored 100%. Statistical analysis indicated that longer neurosurgery curricula (minimum of six weeks) were associated with higher test scores ($p < 0.001$). Conclusion The performance in a cross-geography standardized test revealed that intern performance correlates with length of neurosurgical training during undergraduate studies. A high percentage (42%) of interns failed the test. Consideration should be given to lengthening the neurosurgical curricula or changing tuition methods to ensure higher levels of competency.

ABSTRACT NUMBER / ABSTRAKNOMMER: 7

LEADERS FOR HEALTHCARE 2030: PAHLM- A LEADERSHIP STRATEGY

KERRIN BEGG (Division community health, SU); Maylene Shun King (Division of health policy and systems, UCT); Lilian Dudley (Division of community health, SU); Lucy Gilson (Division of health policy and systems, UCT); Helen Schneider (school of public health, UWC); Uta Lehman, (School of public health, UWC); Vera Scott(School of public health, UWC); Gina Teddy (Division of health policy and systems, UCT); Farzaneh Behroozi (Division community health, su) ;(Dintle Malosiwa (Division of health policy and systems, UCT);Boroto Hwabamunga (School of public health, uwc)

BACKGROUND Leadership and governance are key focus areas for Western Cape Government Health: Healthcare 2030. An essential requirement of the strategy is "a dynamic and distributed leadership across the management, clinical and administrative ranks of the Department." The Partnership for Health Leadership and Management capacity development (PAHLM) project (2014-2015) was a collaboration between three Higher Education Institutions (University of Cape Town (UCT), University of the Western Cape (UWC), Stellenbosch University (SU)) to undertake research to inform a leadership development strategy for the Western Cape Department of Health. METHODS A scoping review of local and international literature provided an evidence base for the development of a conceptual framework for leadership and management competencies. Key informant interviews with health managers in 2 urban and one rural district, as well as workshops with 600 managers further shaped the competency framework for individuals, teams and the system. An inventory of current Higher Education Leadership and Management interventions in the Western Cape was compiled. A

health leadership and management strategy with a plan for intervention was drafted. RESULTS PAHLM has created a new approach to leadership capacity development in complex systems, with the definition of individual, team and system competencies in a competency framework informing an assessment of current functioning and a roadmap for leadership development. The development was grounded in a participatory creation of the competency definitions and framework through a collaborative effort with healthcare managers. CONCLUSION This project has demonstrated the success of a process of co-creation and collaboration between researchers and health service providers in developing a framework for health leadership and management which is relevant to the context, responds to users' needs, and extends beyond individual competencies to teams and the health system. The framework also provides a tool to guide training and capacity development activities in health leadership and management.

ABSTRACT NUMBER / ABSTRAKNOMMER: 8

EVALUATING A COACHIN & MENTORING MODEL FOR HEALTHCARE MANAGEMENT CAPACITY DEVELOPMENT IN THE OVERBERG DISTRICT

FARZANEH BEHROOZI (Division of community health, su); Charlyn Goliath (Western Cape Department of Health); Fidele Mukinda (division of community health, SU); Lilian Dudley (Division of community health, SU)

BACKGROUND Health systems strengthening is a national priority to prepare for Universal Health Coverage, focusing on improved leadership and governance. In 2012, a needs assessment survey with healthcare managers in Overberg District indicated a need for support for leadership and management to improve quality of service delivery. Together with district management, it was decided to implement a model of coaching and action learning for operational managers, focusing on reception services. An evaluation was planned to assess whether this innovative approach achieved its goals. METHODS A process evaluation assessed the coaching approach, content of the training and implementation. The frameworks of realist evaluation and most significant change were used for outcome evaluation. Identification of coaching objectives, key informant interviews with primary health care managers as well as focus group interviews with operational managers were done to obtain an in-depth understanding of their experience of the coaching and mentoring activities and to identify facilitators and barriers to the coaching and mentoring model. Patient satisfaction surveys were analysed to assess if there was a change in reception services. RESULTS Coaching opened up options: in training, mental frameworks were revealed: "nurses are expected to diagnose and have answers". This could translate into an inflexible, authoritarian command and control style management practice, as current managers have not had formal management skills training. Introducing coaching as a management skill could create a shift to a proactive approach of a supportive manager with an empowered team working together to solve problems. One practical challenge was adapting the formal half-hour coaching session to daily work. In the busy, often chaotic clinic setting, this was seen as a luxury. CONCLUSION Coaching can be an on the job skills capacity development for supportive, empowered management. It does require dedicated time and management commitment.

ABSTRACT NUMBER / ABSTRAKNOMMER: 9
STUDENT HEALTH AND WELLNESS AT THEFACULTY OF MEDICINE AND HEALTH SCIENCES, STELLENBOSCH UNIVERSITY: CURRENT STATUS AND NEEDS ASSESSMENT

ANJA HORDIJK (Stellenbosch University - Division of Human Nutrition), Annaleen Joubert (Stellenbosch University - Division of Human Nutrition), Jana van Heerden (Stellenbosch University - Division of Human Nutrition), Janicke Visser (Stellenbosch University - Division of Human Nutrition), Jessie Venter (Stellenbosch University - Division of Human Nutrition), Katy Begg (Stellenbosch University - Division of Human Nutrition), Lauren Philips (Stellenbosch University - Division of Human Nutrition), Lisa Moore (Stellenbosch University - Division of Human Nutrition), Natasha du Preez (Stellenbosch University - Division of Human Nutrition), Nicole le Roux (Stellenbosch University - Division of Human Nutrition), Yolande Smit (Stellenbosch University - Division of Human Nutrition)

Literature indicates that health science students may experience an overall health deterioration during their studies. Over the last decade there has been increased emphasis on student 'wellness programmes' worldwide. The study objective was to assess the current health status of students at the Faculty of Medicine and Health Sciences (FMHS), Stellenbosch University, which included an assessment of student wellness needs. This descriptive, cross-sectional study was conducted by performing both a basic health screening (anthropometric/biochemical measurements) and an online, self-administered questionnaire. Summary statistics, correlation co-efficients and appropriate analysis of variance were used to describe and analyse data. The screening study population (n=536) had a mean age of 20.59±2.17 years (71.0% female). Mean screening values for all variables fell within normal reference ranges. A positive correlation showed an increase in mean BMI as year of study increased (r=0.08, p=0.05). Similarly, as the year of study increased, total blood cholesterol increased (r=0.14, p=0.00). The online survey yielded an 18% response rate (n=330) and the majority of participants (73.1%;n=234) perceived their body weight to be normal. Campus-residing students spent significantly more money on food compared to private students (p=0.00). Students reported needing help with making food choices (47%;n=155) and expressed a desire for a student wellness programme (94%;n=310). Student wellness should remain a priority at the FMHS. This study highlights the importance of student health screening and constant communication in creating awareness of wellness promotion. Gathered data provides baseline information that will enable planning and implementation of targeted activities to improve student wellbeing on campus.

ABSTRACT NUMBER / ABSTRAKNOMMER: 10

ASSESSING THE FOOD & NUTRITION SECURITY OF STELLENBOSCH UNIVERSITY MAIN CAMPUS UNDERGRADUATE STUDENTS

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Nutrition insecurity has been reported at some South African universities. Experiencing hunger has a potential negative impact on academic performance of a student. This cross-sectional study assessed the food and nutrition security of Stellenbosch University main campus undergraduate students, living in university residences or private accommodation.The questionnaire consisted of a screening section followed by 4 sections assessing: 1) socio-demographic and -economic factors affecting nutritional well-being; 2) a 24-hour dietary recall to calculate a Dietary Diversity score (DDS); 3) Food and Technical Assistance (FANTA) Hunger scale and 4) Shortened International Physical Activity Questionnaire (IPAQ). An electronic survey (SunSurvey) was available for online completion for a period of 4 weeks. Data was transferred to an Excel datasheet and analysed. Participants (n=2197) were 63% female and 37% male, had a mean age of 19 years, were in their first year of studying (41%), living in private accommodation (45%) and residences (41%). Twenty one percent of students only ate one or two meals per day. Students (77%) ate fast food more than once per week.

Participants (15%) had less than R500 per month for living expenses thus had a lack of resources to get food (15%), went to bed hungry due to lack of food (11%) and reported going without eating anything for 24 hours (3%). The mean DDS was 5.22 (SD= 1.78), considered a medium score, yet fruit and vegetable intake was low. Significant relationships between DDS and socio-demographic and socio-economic factors were found. The majority of students engaged in moderate (41.5%) to high activity (48.2%). Strong correlations were found between activity levels, gender, body image, accommodation and financial status. The results of this study confirm that food insecurity exists amongst SU undergraduate students and requires attention and appropriate measures to address the problem.

ABSTRACT NUMBER / ABSTRAKNOMMER: 11

MEASURING CLIENT SATISFACTION AT MGD STUDENT-RUN PRIMARY HEALTH CARE CLINICS

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Background. The MGD (Maties Gemeenskapsdiens/Community Service) Primary Health Care Program of Stellenbosch University has been in existence for over 50 years and provides fully operational after hours voluntary student-run primary health care facilities to two underprivileged communities in the Western Cape namely Kalkfontein near Kuilsriver and Groendal in Franschoek, South Africa. Objective. To determine whether clients seen at MGD Student –run Primary Health Care clinics are satisfied with the services that are being provided. Methods. A cross sectional mixed-methods study was conducted at two MGD Primary Health Care clinic sites over a five month period utilising a researcher administered questionnaire adapted from the Health Systems Trust client satisfaction questionnaire to evaluate the seven domains of client satisfaction. The questionnaire contained dichotomised Likert scales and additional questions for collecting descriptive and qualitative data. The Likert scales were quantitatively analysed to determine the proportion of client responses per clinic and average scores per client satisfaction domain. Qualitative data was analysed thematically. Discussion. MGD clinics provide a controlled environment for medical and allied health science students to practice important clinical skills, to develop appropriate interpersonal skills and to gain insight into the importance of primary health care in underprivileged communities. Preliminarily the study shows that the majority of clients from both clinic sites appreciate and are satisfied with the health services that are being provided and feel that their complaints are being listened to and managed holistically. The majority of clients felt that they were treated with respect and dignity by clinic staff and were impressed with the students who, for the first time, thoroughly examined them. Clients also indicated learning new information pertaining to their personal health. Conclusion. Preliminarily MGD clinics appear to perform well in all seven domains of client satisfaction and patients are generally satisfied with the services provided.

ABSTRACT NUMBER / ABSTRAKNOMMER: 12

A MIXED METHODS STUDY OF SOUTH AFRICAN OCCUPATIONAL THERAPISTS' VIEWS AND PREFERENCES REGARDING SPECIALISATION IN OCCUPATIONAL THERAPY

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Specialisation has been a topic of debate amongst occupational therapists for the last two decades. Occupational therapists are regarded as generalists due to the holistic nature on which the profession is based. Specialisation may pose a possible threat to this holistic nature, although some therapists feel that intervention is currently not being practiced in such a manner. There is no specialisation structure for South African occupational therapy or other allied health science professions. The aim of the study was to investigate the views and preferences of South African occupational therapists regarding specialisation, which may better inform the occupational therapy regulatory body to assist in the development of a specialisation structure for occupational therapy. A mixed method study, sequential exploratory design was used in this study. A total of 6 interview participants' expert opinions were used to compile a survey to determine the views and preferences of South African occupational therapists regarding specialisation. The survey population (N=4046) consisted of all HPCSA registered occupational therapists. The sample size (n=536) proved a response rate of 13.25%. Within the qualitative phase of the study four themes emerged that were quantified to develop the survey. The most prominent trends that occurred during the quantitative phase were the following: most participants (85.8%) felt that there is a need for specialisation within the South African context. The majority of participants (70.1%) felt that the advantages of specialisation outweigh the disadvantages. Thereafter, 63.4% of participants indicated that they would specialise if a specialist register were to be made available by the HPCSA. Most participants (83.3%) suggested that additional qualifications should be added to the current register if a specialist register for occupational therapy were to be implemented, in contrast with a separate register which implies being removed from the generalist register.

ABSTRACT NUMBER / ABSTRAKNOMMER: 13

THE EFFECTIVENESS OF A QULAITY IMPROVEMENT COLLABORATIVE TO ACCELERATE ELIMINATION OF MOTHER TO CHILD TRANSMISSION (EMTCT): KEY OUTCOMES AND DETERMINANTS FROM A DEMONSTRATION PHASE COLLABORATIVE IMPLEMENTED IN THJE EASTERN CAPE, 2012-2015

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Background: South Africa has made improvements in prevention of mother-to-child transmission (PMTCT) services as demonstrated by a reduction in vertical transmission in the recent past. Challenges remain in programme implementation for antenatal and postnatal services. This article outlines impact and determinants for successful implementation of a quality improvement collaborative (QIC) approach as a method to accelerate the achievements of elimination of mother-to-child transmissions (eMTCT) goals. Methods: In partnership with the Department of Health, we implemented a QIC in 55 health facilities in three provinces over two phases: a pilot phase and a demonstration phase. Learning sessions and quality improvement (QI) projects were conducted on

key elements of the PMTCT cascade. To assess performance, we compiled control charts on indicators from district health information system. The Wilcoxon signed-ranks test was used to test for significance in increases or decreases between pre- and post-intervention medians. Influencing factors such as facility level QI skills, organisational culture and facility type and location were measured to understand influencing factors. Results: We observed significant improvements ($p < 0.01$) in early booking rates (24 %); antenatal HIV retest rates (31%); exclusive breastfeeding rates improved (28%); 18 month rapid test uptake rates improved (28%). 6 days visits rates improved (6%). Factors influencing performance were baseline rates, facility type and size, quality improvement skills, leadership and buy in for quality improvement. Conclusions: The collaboratives showed improvements in eMTCT program outcomes in a wide range of contexts across facilities in the Eastern Cape Province. Performance variability may be attributed to contextual, organizational and system factors. Recommendations: The is need to foster effective partnerships bewteen the Department of Health and Implementing Partners in order to achieved improved health outcomes for communities. Additionally, the QI Collaboratives provided a unique capacity building and provided a basis for scalability and replicability across programme contexts.

ABSTRACT NUMBER / ABSTRAKNOMMER: 14

DID EXPOSING AN INTERPROFESSIONAL CLASS OF FIRST YEARS TO AN UNDERSERVED COMMUNITY CONTRIBUTE TO THE STUDENTS' CONTEXTUALISATION OF DETERMINANTS OF HEALTH?

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Background: The primarily theoretical, class room-based teaching of Public Health early on in undergraduate curricula at South African universities is of concern. Students often found it boring and failed to see its relevance to their future careers. An innovative approach to this challenge was introduced at a South African university. First year students were divided into interprofessional groups, each adopting an underserved community to visit for a day. In preparation, groups gathered information on "their" community after attending workshops on social determinants of health (SDH), systems for health, person-centeredness, worldviews and team functioning. The objective of this study was to determine how exposing an interprofessional class of first years to an underserved community, contributed to students' contextualisation of the determinants of health. Methodology: In this qualitative study the interprofessional first year medical-, physiotherapy- and dietetic class, consisting of approximately 400 students, participated by completing an online questionnaire. 40 randomly selected student reflective reports was analysed and included in this study. Outcomes: Despite the workshops and small groups gathering information, most students struggled to contextualise and see the relevance of these topics prior to their community visit. Following the first-hand experience in "their" community, students had a deeper affective-cognitive realisation of health inequity and was able to better contextualise the impact of SDH on individuals and communities. They acknowledged that their idealistic perceptions of their future professions fell short of what is required to act as change agents in addressing health inequity, a challenge requiring a higher level of interprofessional collaboration. Implications: Exposing first years interprofessionally to an underserved community helped students to better understand the impact of SDH; gave them a better grasp of what is needed to collaborate interprofessionally in addressing health inequity; and served as motivation to develop as agents of change.

ABSTRACT NUMBER / ABSTRAKNOMMER: 15

THE WESTERN CAPE POISONS HELPLINE, AN INNOVATIVE AND UNIQUE SERVICE IN AFRICA

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Background:South Africa has three Poisons Information Centres of which two are located in the Western Cape: the Red Cross Poisons Information Centre and the Tygerberg Poisons Information Centre . The activities of the two units differ, but their telephone services overlap. Objective: Collaboration between two poison centres to enhance the efficacy of the poison telephone service in South Africa. Methods: Due to important technological developments (telephonic and computing) the two centres combined their telephone services on 1 June 2015 and initiated the Western Cape Poisons Information Helpline. A dedicated telephone line with a single share call telephone number 0861 555 777 was introduced. Data from poisoning cases are entered in real-time, while a call is in progress, on a live server-based data system called Afritox Telelog. The Telelog system uses a FileMaker application, licensed through Apple Inc, and is set up for multiple users on a Microsoft platform. Users can be logged on simultaneously and can perform data entry or run reports at the same time. Results and Discussion: The new service has several advantages: Simplified access to poisoning advice with a single national number to call Pharmacists and doctors run the after-hours service with medical specialists providing Tier 2 support Pooling of call data provides better understanding of poison exposures in South Africa Improved and harmonized poisoning information provided to healthcare professionals and the general public. Staff of the poisons information centres have expertise in different aspects of toxicology and the joint service gives an opportunity for experts to share their knowledge. Conclusion: This service is unique to Africa and other developing countries should be encouraged to use a similar model for networking and sharing of resources and expertise.

ABSTRACT NUMBER / ABSTRAKNOMMER: 16

ROOM TEMPERATURE STORAGE SOLUTIONS: AN ALTERNATIVE TO COLD CHAIN MANAGEMENT WITHIN NIOBANKS AND/OR DIAGNOSTICS AND RESEARCH LABORATORIES

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Background: Cold chain management (CCM) is an important aspect of biobanking operation. However challenges such as constant power failure, limited access to dry ice and liquid nitrogen, transport logistics and courier delays especially in Africa becomes a major challenge. Ensuring samples are maintained at the proper temperature throughout all processes is imperative to maximal

long term viability and usability. This includes during processing, transportation and storage.Thus we consider room temperature storage (RTS) technologies as an innovative, cost effective and green alternative to cold chain logistics. Methods: Various room temperature storage technologies were evaluated for the stabilization and storage of whole blood DNA and RNA, buffy coat, genomic DNA and urine DNA.The stabilizers include the Biomatrica liquid gard technology and dry matrix technology as well as Hemagene buffy-coat stabilizers, Paxgene RNA and Norgen urine tubes. Samples were stored with and without a stabilizer under different temperature conditions over different time periods to determine effect on sample integrity and quality. Results: Preliminary results show that sample integrity/quality for biospecimens stored at room temperature with stabilizers were comparable and more cost effective than cold chain storage systems. Conclusion: Green technologies forms a small part of biobanking operations however its results would be beneficial as low energy options for biobanking are particular critical in low resource settings which have infrastructural challenges. In turn, it would also be a more cost-effective option for the transport and storage of human samples collected at various sites all over the world or at difficult out of reach places.

POSTER PRESENTATIONS / PLAKKAATAANBIEDINGS

ABSTRACT NUMBER / ABSTRAKNOMMER: 17
THE UTILISATION OF EDUCATIONAL RESOURCES WITHIN THE DIVISIONS OF EMERGENCY MEDICINE AT STELLENBOSCH UNIVERSITY AND THE UNIVERSITY OF CAPE TOWN

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BackgroundHealth education is moving towards integrating online resources and social media into higher education and continued professional development.ObjectiveTo describe the usage of various educational resources by members of the Divisions of Emergency Medicine at Stellenbosch University and the University of Cape Town.MethodsMembers affiliated with the divisions during 2014 were invited to participate in an online survey. Participants were given 8 weeks to complete the questionnaire; with weekly reminders until they responded or the deadline expired. Summary statistics were used to describe the variables.ResultsEighty seven divisional members completed the survey (69% response rate). Textbooks (n=78, 89.7%), open access resources (n=77, 88.5%), and journals (n=76, 87.4%) are mostly preferred. Emergency Medicine trainees (n=31, 92.1%) and respondents _ 30 years (n=17, 94.4%) were more inclined to use social media. International Emergency Medicine and Critical Care blogs are frequently being used (71%). YouTube (35%) and podcasts (21%) were the most commonly utilized multimedia resources. Computers were most frequently used to access educational resources except for social media where smart phones were preferred.ConclusionTraditional educational resources are still preferred, but this study illustrates an opportunity for greater integration of online resources and social media in educational activities to enhance multimodal and self-directed learning. Specific training in the use of these resources and how to appraise them, may further improve their utility.

ABSTRACT NUMBER / ABSTRAKNOMMER: 18

DIETETIC STUDENTS TRAIN HEARING IMPAIRED STUDENTS: EXPERIENCES AND PERCEPTIONS OF BOTH GROUPS

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BACKGROUND: Final year dietetic students from Stellenbosch University (SU) present selected lectures during their Ukwanda-rotation to hospitality students of the National Institute for the Deaf (NID). The aim of the study was to investigate the experiences, perceptions and attitudes of both groups of students following a descriptive phenomenological approach. METHODS: Dietetic students (n=23) reflected on their experiences before and after they provided training to the NID students. Two focus groups (FG) were conducted with final year professional cookery NID students (n=19) after the training sessions to explore their experiences and perceptions related to the training session. FGs were voice recorded. An interpreter facilitated the discussion topics using South African Sign Language and verbalised the NID students' responses. The interpreters' voice recordings were transcribed manually and thematic content analysis was performed. RESULTS: NID students

described feelings of uncertainty prior to the training. The fear of the unknown changed to excitement and curiosity as the presentations continued. They were positive about the learning experience and described it as "wonderful" and "interesting". Dietetic students described the experience as challenging but valuable to gain insight in the reality of living with deafness. The experience contributed to their professional and personal development as both groups had the impression that the interactions had a positive impact both ways. Students were appreciative and grateful for the opportunity to engage with and learn from each other. Suggestions were made to improve future training based on identified barriers e.g. overcoming communication challenges and clarifying reciprocal misperceptions. Perceptions changed when they realised the similarities between student groups.CONCLUSION: The experience was insightful and changed perception of both groups of students. The overwhelming positive experience from both student groups is a strong motivation to continue with this initiative. Dietetics students recognised the importance of health promotion to people with disabilities.

ABSTRACT NUMBER / ABSTRAKNOMMER: 19

THE CLINICIAN'S EXPERIENCES OF A SIMULATED ART ADHERENCE EXERCISE: A QUALITATIVE STUDY

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An updated Paediatric & Adolescent HIV/TB Management Short Course, using a blended learning methodology consisting of face-to-face contact sessions and distance learning, was developed by South to South, to equip healthcare providers to effectively, and safely manage paediatric HIV patients. Part of the adherence component of the paediatric course involved participants simulating either a caregiver or treatment supporter role. There are few training initiatives aimed at assisting healthcare providers to understand the paediatric adherence challenges of caregivers, treatment supporters, and children on ART. A qualitative phenomenological approach was used to understand the experiences of the participants through focus group discussions, semi-structured interviews, and personal diaries. Five thematic clusters emerged, namely, shared experiences, patient-provider relationships, adherence strategies, barriers to adherence, and clinical management. The simulated exercise helped enhance the skills of healthcare providers as promoters of optimal adherence. This intervenion has the potential to improve relationships with their patients, and generate ideas and discussion that could lead to improvements in clinical practice, and adherence promotion strategies. At a health systems level, this simulation exercise has the potential to inform public health policy regarding provider awareness and paediatric adherence issues.

ABSTRACT NUMBER / ABSTRAKNOMMER: 20

AN EXPLORATION OF PATIENTS' EXPERIENCES OF THE VALUE OF AN OCCUPATIONAL THERAPY OUTPATIENT CRAFT GROUP.

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Mental Health is a discipline within the health sciences that has compelled many professionals to explore it. According to the World Health Organisation, mental health is defined as a state of well-being whereby the individual realizes their own potential and are able to contribute to society. Poor mental health compromises a person's well-being and the ability to realize the individual's potential. It may also limit the person's ability to work productively and contribute to society.Support groups held for patients post discharge from acute treatment offer an opportunity for mental health consumers to receive ongoing therapeutic intervention while living at home.Standardized outcome measures in occupational therapy are available for in-patient groups. However, they measure the impact of interventions offered to in-patients.Outpatient interventions differ in quantity and quality to inpatient groups. A different outcome measure is therefore needed to measure the impact on occupational performance for outpatient mental health consumers attending outpatient occupational therapy craft groups.In the absence of an outcome measure for outpatient occupational therapy group programmes, working towards the development of such a measure is important. The first step towards achieving this is to be able to use a research process to identify what the constructs to be measured could be. This study aims to contribute towards the development of such an outcome measure by exploring and describing the experiences of mental health consumers attending an outpatient occupational therapy group at a local public health psychiatric institution. An Appreciative Inquiry qualitative design will be used to explore the value of an outpatient occupational therapy craft group.This study aims to contribute towards the exploration of the value of outpatient craft groups of mental health hospitals across the province. This way empirical evidence will support patient anecdotes of enhanced meaning and participation in occupational therapy craft groups.

ABSTRACT NUMBER / ABSTRAKNOMMER: 21

ENHANCING EVIDENCE-BASED HEALTH CARE (EBHC) TEACHING AND LEARNING FOR UNDERGRADUATE MEDICAL STUDENTS AT THE FACULTY OF MEDICINE AND HEALTH SCIENCES, STELLENBOSCH UNIVERSITY: 2010-2015

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BackgroundEBHC is a systematic approach to clinical problem-solving which allows the integration of best available research evidence with clinical expertise and patient values. From 2010-2015 the EBHC subproject of the Stellenbosch University Rural Medical Education Partnership Initiative (SURMEPI) worked on enhancing EBHC teaching and learning for medical students. MethodsIn 2011 and 2012 we conducted a comprehensive situational analysis , to take stock of what was covered in the undergraduate medical curriculum. Results showed that throughout the 6 year programme, EBHC teaching and learning was fragmented and not integrated into clinical rotations. To complement the situational analysis, we conducted further research to inform EBHC teaching and learning. Based on our findings, we developed and implemented enhanced EBHC teaching from 2014: In the pre-clinical years the foundation of EBHC is laid by introducing the value of EBHC, basic epidemiology and biostatistics in theoretical modules. Methods include didactic lectures with practical examples and exercises, with assessment. In the clinical years EBHC teaching comprises discipline specific, clinically integrated EBHC learning during clinical rotations to cover identification of knowledge gaps linked to

patients, phrasing clear questions, searching for best evidence, critically appraising and interpreting evidence of various study designs, and considering the application of findings. Online resources are used for self-directed learning. ResultsThe use of the situational analysis and further research to inform enhancements in the curriculum was fundamental. Other aspects that worked well included involving module convenors and clinicians, clearly pre-defining learning outcomes, interactive small group sessions, practical application, faculty development and having a dedicated team driving the implementation. Bedside learning of EBHC with role modelling in the clinical field remains a challenge. ConclusionThe enhanced EBHC teaching and learning approach has successfully been implemented and was well received. Continuous evaluation to improve our offering was very helpful.

ABSTRACT NUMBER / ABSTRAKNOMMER: 22

OCCUPATIONAL THERAPY IN HOMES FOR THE AGED: A SURVEY OF PRACTICE IN SOUTH AFRICA

CECILE MICHAU *Undergraduate Student*
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Background and aim: Little is known regarding the role of occupational therapists in homes for the aged in South-Africa. The aim of this study is to better the understanding of what the role of occupational therapy entails in the specific domain of practice in care homes for older adults in South Africa.Methods: A quantitative cross-sectional online survey was used in this study to gather the required data. Participants from 9 provinces were recruited by using convenience sampling and snowballing simultaneously. The participants completed an online survey. Data were analyzed using the IBM SPSS 22.0.0.0.Results: 30 respondents completed the online survey. The majority of participants worked on a part time basis in more than one type of setting with older adults. The method of intervention (indirect or direct) used most by participants was seeing residents together as a group (median=3.4). The service provided most often was enhancing the participation in meaningful and social activities. The activities used most frequent by participants during intervention were enhancing leisure time, monitoring decline in functioning, exercise groups, social activities, treatment of specific conditions, create a free and supportive environment and record keeping. Conclusion: This study showed that there is a role for occupational therapy in care homes in South Africa. The role of occupational therapy can be seen as allocating and conducting the appropriate assessment for older adults in care homes. Secondly, choosing a method of intervention which consists out of direct- or indirect methods. Thirdly the role can be described as the services occupational therapists deliver most in care homes and the activities they use to deliver these services. When the findings of this study are used it could contribute to improve the quality of service being provided by occupational therapists in care homes in South Africa.

ABSTRACT NUMBER / ABSTRAKNOMMER: 23

MAPPING THE ROLE PLAYERS, PROCESSES AND CONTEXT FOR CLINICAL PRACTICE GUIDELINE DEVELOPMENT AND USE FOR PRIMARY CARE CONDITIONS IN SA.

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Background: Primary healthcare clinical practice guidelines (CPGs) in South Africa have primarily focused on the medical and nursing management of communicable and non-communicable

diseases. They have contained almost no guidance for allied health (AH). This paper presents rich findings on barriers and enablers for developing and implementing AH CPGs in South African primary healthcare. Methods: We used a comprehensive multilayered cluster-sampling frame for this study. Twenty-five semi-structured interviews were conducted by pairs of interviewers using an interview guide. Transcribed audiotaped interviews were used for analysis, which was undertaken by hand, and then using Atlas.ti software. Family codes, themes, sub-themes and exemplar quotations were identified. Results: Saturation for each interview question occurred in each cluster. The themes relevant to barriers and enablers are Interdisciplinary allied health networks, support, challenges to evidence production and implementation and training needs. Conclusion: AH CPG activities in the South African primary care setting are challenged by fragmentation of effort, lack of training, support, resources and recognition of effort. However the interdisciplinary Allied Health networks in South Africa, which are largely informal, provide a conduit which mediates barriers into many innovative solutions and should be maximized at this point.

ABSTRACT NUMBER / ABSTRAKNOMMER: 24

THE COMPLEX SCIENCE OF BIOBANKING: THE NHLS/STELLENBOSCH UNIVERSITY BIOBANK (NSB), A SOUTH AFRICAN CASE STUDY

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SCIENTIFIC EXHIBITION To date, the rapidly expanding era of genomic research and personalized medicine promises real and tangible solutions to help alleviate health burdens however it would require large scale genomics studies which is currently lacking or limited in SA despite the high burden of both communicable and non-communicable diseases. Lack of these large scale genomic studies in SA is most likely attributed to a shortage of genomic scientific researchers, limited computational expertise and lack of resources and biomedical infrastructure. Our natural biological resources is of interest to the global community and this is why consortia such as the H3Africa (NIH and the WT) and B3Africa (EU) is interested in funding genomic and bioinformatics research within SA and other African countries. Thus to ensure sustainable research, access to high-quality specimens of our unique ethnic populations in statistically relevant numbers is needed and attention should be given to infrastructures such a biobanks. It plays an integral role as these types of essential resources, if properly designed and maintained, are very important for addressing important questions on national, continental and global health issues. To date, the value of biobanking in SA and Africa has increased and has emerged as a complex science. However, this is still an emerging concept due to the myriad of complex considerations relating to ethical, legal, political, societal, religious, cultural, financial and educational challenges. Thus an overview of the NHLS/SU Biobank (NSB) established in 2012 and registered with SU is given. NSB follows standardized ethical, social, and legal policies, procedures and protocol frameworks. Thus important fundamental issues such as governance, ethics, infrastructure and bioinformatics that are important foundational prerequisite for the establishment of a successful human biobank are covered along with services that the biobank can provide to the outside research community.

ABSTRACT NUMBER / ABSTRAKNOMMER: 25

9. 'PATIENT-BLAME' IN THE CONTEXT OF THE ROLL-OUT OF 'UNIVERSAL TEST AND TREAT' – AN EXPLORATORY, CONCEPTUAL ANALYSIS OF COGNITIVE PROCESSES

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Universal Testing and Treatment (UTT) offers new hope as a global strategy to limit the HIV epidemic. Its effective implementation requires responsive, resourceful healthcare providers (HCPs). In our study, HCPs consistently expressed a perception that clinical resources are currently overburdened and concern that UTT might exacerbate this. Further, some HCPs also blamed patients (often indirectly) for undesired outcomes. We present a conceptual, exploratory analysis of the cognitive processes enabling 'patient-blame' in this context in order to optimize UTT roll-out. HPTN 071 is a cluster-randomised trial in Zambia and South Africa with three arms. We analysed structured observations, 157 interviews and 19 group discussions with HCPs across the 21 trial sites over 30 months. Conceptual trends are identified through narrative analysis. We identify three related cognitive processes that may explain patient-blame: (1) 'Difference in register' – patients' treatment outcomes are individual, but for HCPs they are also part of public health implementation. HCPs' guilt at public health 'failures' can be deflected to patients. (2) 'Expert power' – When patients ('lay') do not do what HCPs ('experts') think they should then the HCPs' expert authority is challenged. Labelling such patients as 'bad' enables HCPs to reclaim this power. (3) Like victim-blame, 'innocent' patients having undesired health outcomes threatens belief in the world's justness. Rather than accepting this, blame is affixed to patients who 'must have done something to deserve it'. UTT may exacerbate each of these processes by (a) raising the symbolic stakes of treatment, (b) having more patients who are perceived as relatively 'well' but who may opt out of treatment, and (c) requiring resolution of the 'just-world' tensions' more frequently. In this healthcare context, normative (even positive) cognitive processes enable patient-blame. Training and health system strengthening should be implemented alongside UTT roll-out to mitigate HCPs' association of blame with HIV-status.

ABSTRACT NUMBER / ABSTRAKNOMMER: 26

BUILDING TRUST IN A NEWLY-INTRODUCED PRIMARY HEALTH CARE PROFESSIONAL IN SOUTH AFRICA

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Context: The impact of the relatively new discipline of family physicians in the African setting requires more evidence. Twenty-two years ago, the South African government embraced the district health services model to ensure equal access to quality primary care in its communities. The bulk of the primary care workforce are nurses, supported by doctors (with no postgraduate training). The potential benefit of an expert generalist with postgraduate training was advocated and nine years ago, family medicine became a registered specialty in South Africa. Five years ago, the first graduates of the new training programmes entered the district health system. However, policy makers, managers and clinicians remain hesitant to embrace this new specialty within the district health services. Objectives: A EuropeAid-funded research project aims to evaluate the impact of family physicians within the district health services of South Africa. This poster focuses on one of the methods used, an analysis of a national data set of indicators to evaluate the correlation between the

supply of family physicians and district health system performance. Methods: A cross-sectional analysis was done to look for associations between family physician supply and 75 indicators of district performance for the time period of 2014/2015. A further analysis compared two time periods: 2010/2011 (baseline) and 2014/2015 (increase in numbers and duration of effect of family physician supply). Results: Regression analysis was used to indicate associations and potential effect sizes. Conclusions: The results of this cross-sectional analysis should be triangulated with the findings from the rest of the study (qualitative, quasi-experimental and survey data). The combined results will be communicated with stakeholders of the district health services (including managers and clients) in order to build trust in this new discipline.

ABSTRACT NUMBER / ABSTRAKNOMMER: 27

LESSONS LEARNED ABOUT PHLEBOTOMY AND HIV RAPID TESTING IN THE POPULATION COHORT (PC): NURSES PERSPECTIVES FROM SOUTH AFRICA

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Background: HPTN 071 (PopART) - A community based randomised trial to determine the impact of Intervention packages of HIV prevention on community level HIV incidence. Participants are randomly-selected adults (18-44yrs). Methods: Population Cohort (PC) implementation began in January 2014, is over 3 years and selected from 9 sites. Activities include: Informed consent, an EDC administered questionnaire, venous blood sample collection and HCT. Results: Category Challenge Strategy Physical environment: Absence of sufficient lighting Doors and curtains opened. Headlights provided Absence of suitable furniture and work surfaces Availability of suitable medical supplies. Clipboards and lap desks provided. Confidentiality, privacy and communication Lack of space in the households Appointment rescheduled or alternative venues. RE's and Nurses trained on soft communication skills. Climatic conditions: Extreme climatic conditions prevail: Too hot: Dizziness Too cold: poor blood circulation Visits adjusted to accommodate the participants. Energy drinks are provided. Provision of warm liquids. Conclusion: Households as settings pose as challenges for successful completion of clinical tasks, however, through implementation of various strategies and training of research enumerators and nurses on household based fieldwork - goals activities are efficiently completed. Final content will be shared with the HPTN team during the Annual meeting 2016. Authorship and Affiliations:

ABSTRACT NUMBER / ABSTRAKNOMMER: 28

THE AVAILABILITY AND KNOWLEDGE OF USE OF AIRWAY MANAGEMENT DEVICES IN EMERGENCY CENTRES AT REFERRAL HOSPITALS IN NAMIBIA

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Introduction: Appropriate airway management is crucial for optimal patient care in emergency settings. The aim was to investigate which airway devices were available in emergency centres of referral hospitals in Namibia as well as the current level of knowledge regarding their use. Methods: Emergency centres of four referral hospitals in Namibia were visited during October 2015. A standardised data collection sheet was completed to assess the availability of 19 airway devices. A questionnaire was distributed to all medical officers working in the relevant emergency centres to assess the perceived knowledge of use of airway devices. Summary statistics are presented and Pearson's Chi-square test used for comparison. Results: All centres had some form of basic airway device. Only one had venturi-mask. No centres had rigid stylet/introducer, video laryngoscope, surgical airway devises and laryngeal tube. Thirty seven medical officers were interviewed; 17 (45.9%) were senior medical officers. The majority (n=24, 64.9%) had no formal training in airway devices. Half of all devices were correctly identified. Answers were more accurate when depicted devices were available in the specific emergency centre (68.4% vs 18.6%, $p<0.05$). Most medical officers rated themselves as having an above average competency level. Conclusion: Basic airway devices are available in referral emergency centres in Namibia. The study suggests a need for formal training on airway management devices and their use.

Theme 2 / Tema 2

Infectious Diseases/

Infeksiesiektes

Oral Presentations/ Referate

ABSTRACT NUMBER / ABSTRAKNOMMER: 1

THE EFFECT OF HIV INFECTION ON THE AGE AT PRESENTATION OF HBV-DRIVEN HEPATOCELLULAR CARCINOMA IN SOUTH AFRICA.

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Background: Hepatocellular carcinoma (HCC) is the third most common cause of cancer mortality worldwide. Over 60% of HCC cases arise from chronic infection with HBV and/or HCV. Although HIV is known to impact on the natural progression of HBV infection, its impact on the epidemiology of HCC is not completely understood. This study investigated the occurrence of HIV among a cohort of patients incidentally diagnosed with HCC at four hospitals in South Africa.Methods: A total of 107 patients diagnosed with HCC were recruited at selected teaching hospitals in two provinces of South Africa following informed consent. Study subjects were recruited between December 2012 and October 2015. Demographic, laboratory and clinical data together with blood specimens were collected. When unknown at the time of diagnosis, patients were tested for HBsAg, HBeAg and HIV on the Abbott Architect. Results: Of 107 recruited HCC cases, 68/106 (64.1%) were positive for HBsAg. HIV seropositivity was seen in 22/100 (22%) of all HCC cases. HBeAg was seen in 10/17 (59%) of HIV-infected compared to 9/46 (20%) among HBV-monoinfected cases, p=0.005. Among HBsAg-positive HCC cases, 19/66 (29%) were HIV-infected compared to only 3/34 (9%) among those that were HBsAg-negative, p=0.04. The proportion of females among the HBV/HIV co-infected HCC cases of 6/18 (33%) was significantly higher compared to those that were HBV-monoinfected 6/47 (13%), p=0.005. HIV/HBV co-infected females presented younger, at median age 37.0 years (range: 30-44) compared to 50 years (range: 24-83) in HBV-monoinfected women. Conclusion: There is a high prevalence of HIV and HBV co-infection among HCC patients in South Africa. There is a trend towards younger age at diagnosis of HCC among HIV-positive women compared to those who are HIV-negative. Larger multi-centred studies are needed to more accurately evaluate the impact of HIV infection on the epidemiology of HCC among sub-Saharan populations.

ABSTRACT NUMBER / ABSTRAKNOMMER: 2

REGULATION OF IRON-SULPHUR CLUSTER BIOGENESIS IN MYCOBACTERIUM TUBERCULOSIS.

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Iron-sulphur clusters (Fe-S) are protein cofactors utilised by proteins involved in multiple cellular processes. Fe-S cluster biogenesis systems synthesize Fe-S clusters since clusters are sensitive to oxidation. In Mycobacterium tuberculosis (Mtb), the Rv1460-Rv1461-Rv1462-Rv1463-csd-Rv1465-Rv1466 operon (suf operon) encodes the major Fe-S cluster biogenesis system. All these genes,

except Rv1460, are predicted to be essential for in vitro growth of Mtb. Rv1460 encodes a probable transcriptional regulator with homology to sufR which regulates suf operon expression in cyanobacteria. SufR coordinates an Fe-S cluster and its DNA-binding affinity depends on the presence and redox state of the Fe-S cluster. The aim of this study was to determine the role of Rv1460 in suf operon regulation and bacterial physiology. AMtb mutant which produces a non-functional, truncated form of the Rv1460 protein (Rv1460stop) was generated by homologous recombination. The mutant was complemented by introducing a vector containing Rv1460 with its native promoter into the attB site of the mycobacterial chromosome. Evaluation of the growth of the wild-type, Rv1460stop mutant and complemented strain revealed that loss of Rv1460 is associated with impaired growth under standard culture conditions. The growth defect was exacerbated by culturing in the absence of catalase, suggesting that the mutant is more sensitive to oxidative stress. RT-qPCR indicated that Rv1460, like SufR, functions as a repressor of the suf operon. Electrophoretic mobility shift assays confirmed binding of purified recombinant Rv1460 within the promoter region upstream of Rv1460 and within Rv1461, and UV-visible spectroscopy confirmed that Rv1460 binds an Fe-S cluster. This study provides the first insights into the function of Rv1460 in Mtb and points to its importance in the regulation of Fe-S cluster biogenesis.

ABSTRACT NUMBER / ABSTRAKNOMMER: 3

BAT CORONAVIRUSES – HOW DO THEY JUMP THE SPECIES BARRIER?

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Bats are known to carry numerous viruses that can potentially infect other animals including humans and result in what may range from harmless infections to global epidemics of severe diseases. Numerous coronaviruses (CoV) have been found in bats, including the progenitors of SARS-CoV that caused an epidemic in 2002/03 with over 8000 cases and a 10% fatality rate, and of MERS-CoV which has been occurring since 2012 in the Middle East, causing 1,698 infections and 609 deaths to date. SARS-CoV was transmitted to humans from civets and MERS-CoV from dromedaries. A South African bat species, Neoromiciacapensis, was found by our group to harbour a novel CoV, named NeoCoV, that is genetically 85% identical to MERS-CoV. However, nothing is known about the host-switching events that could have caused an adaptation of this virus to dromedary camels and / or humans, giving rise to MERS.For unclear reasons, propagation of bat viruses in cell cultures is notoriously challenging; only one laboratory has succeeded in isolating a CoV from a Chinese horseshoe bat, while numerous other attempts across bat and virus species have failed. The use of the correct cell line is apparently critical for virus isolation; however, few bat cell lines are available and none from N. capensis. We have established primary cell cultures from various N. capensis tissue types immortalised by transduction with the large T-antigen of Simian Virus 40. Pseudoparticle technology presents a novel yet promising method of identifying suitable cell lines for the isolation of particularly elusive viruses: We use bio-safe replication-deficient virus-like particles bearing the spike proteins of NeoCoV in order to identify virus-cell line compatibility before using precious bat-derived samples. These tools in combination present a practical and biologically rational manner of investigating the factors involved in the zoonoses caused by bat-borne CoVs.

ABSTRACT NUMBER / ABSTRAKNOMMER: 4

ISONIAZID FOR PREVENTING TUBERCULOSIS IN HIV-INFECTED CHILDREN.

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Tuberculosis (TB) is a common cause of acute and chronic respiratory disease and death in HIV-infected children. Currently there is no consensus on the use of TB preventive therapy in HIV-infected children. The objective of this review was to determine the impact of TB preventive therapy on TB incidence and death in HIV-infected children.We included studies of HIV-infected children randomised to receive TB preventive therapy or placebo. Two authors independently assessed methodological quality and extracted data.We included three trials, of these, two were conducted in South Africa and one was a multicenter trial that was conducted in South Africa and Botswana. In one trial all children were on antiretroviral treatment (ART), in the second trial about 20 and 98.9% of the children initiated ART at baseline and within first year and in the third trial 9% were on ART at baseline with 22% starting ART during the trial. The median length of follow-up ranged from 5.7 to 34 months.In children on ART, there is currently insufficient evidence to indicate if isoniazid prophylaxis reduces the incidence of active TB (RR 0.76, 95% CI 0.50 to 1.14) or the risk of death (RR1.45, 95% CI 0.78 to 2.72). In children not on ART, isoniazid prophylaxis may substantially reduce the incidence of active TB (HR 0.31. 95% CI 0.11 to 0.87) and mortality (HR 0.46, 95% CI 0.22 to 0.95). The risk of any grade 3 or 4 clinical or laboratory adverse events was not different between children on isoniazid or placebo.There is insufficient evidence to recommend the use of primary isoniazid prophylaxis in HIV-infected children on ART. In HIV-infected children not on ART, isoniazid prophylaxis may be a beneficial intervention to reduce the incidence of active TB and mortality.

ABSTRACT NUMBER / ABSTRAKNOMMER: 5

EARLY PATHOGENESIS OF TUBERCULOUS MENINGITIS STUDIED IN HUMAN AND ZEBRAFISH.

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Tuberculous meningitis (TBM) is a major disease burden in children in TB endemic countries. To further understanding of early pathogenesis and possibly improve early diagnosis and treatment, we compare granuloma formation in material from TBM patients and in our zebrafish – Mycobacterium marinum infection model for TBM. In addition, this model will be used to study first steps in TBM pathogenesis.Within the human neuropathology study, brain specimens of a unique historical cohort of 39 children and 41 adults who died of stage III TBM between 1975 and 2012 have been collected. Standard histological staining techniques (Hematoxylin & Eosin, Ziehl Neelsen, Reticulin Silver) are used and reveal three types of granulomas found in the central nervous system (CNS): non-necrotizing-, gummatous- and abscess type granulomas. These types are associated with differences in disease progression and response to therapy. Interestingly, adult zebrafish also develop these

distinct granuloma types.Additionally, transgenic zebrafish larvae, with fluorescently labelled blood vessels and immune cells, infected with M. marinum are used to show that M. marinum is able to cross an intact BBB within a macrophage acting as Trojan Horse, and induce early granuloma formation in brain tissue. Surprisingly, infection of macrophage-depleted larvae still results in migration of mycobacteria across the BBB, although granulomas are no longer formed. This suggests that mycobacteria seem to be able to adapt and are capable of using macrophage independent migration mechanisms to pass the BBB.In conclusion, we show that both human and zebrafish develop non-necrotizing, gummatous and abscess granulomas in the brain, highlighting once again the value of the zebrafish as model to study TB(M) pathogenesis. Using this model we found that mycobacteria preferably use a macrophage as Trojan Horse to cross the BBB, but seem to be able to use alternative migration routes when macrophages are not around.

ABSTRACT NUMBER / ABSTRAKNOMMER: 6

A NOVEL INHIBITOR OF GYRASE B IS A POTENT DRUG CANDIDATE FOR THE TREATMENT OF TUBERCULOSIS INFECTION.

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New drugs to treat drug resistant tuberculosis are urgently needed. Extensively drug resistant to fluoroquinolones such as moxifloxacin, which target Gyrase A, results in death of most infected people within a year. In this study, we report a novel aminobenzimidazole (VXc-486), which targets Gyrase B, potently kills multiple drug sensitive and resistant isolates of Mycobacterium tuberculosis in vitro (minimal inhibitory concentration 0.03-0.30 µg/mL and 0.08-5.48 µg/mL, respectively). VXc-486 also reduces mycobacterial burdens in lungs of infected mice in vivo. VXc-486 has bactericidal activity, kills intracellular and dormant M. tuberculosis in a low oxygen environment. Furthermore, we found that VXc-486 inhibited multiple strains of Mycobacterium abscessus, M. avium complex and M. kansasii (0.1-2.0 µg/mL MIC) as well as several strains of Nocardia spp. (0.1-1.0 µg/mL MIC). We directly compared a phosphate prodrug of VXc-486 and showed that it had more potent killing of M. tuberculosis than VXc-486 in vivo. In combination with other anti-mycobacterial drugs, the prodrug of VXc-486 sterilized M. tuberculosis infection with rifapentine/pyrazinamide and bedaquiline/pyrazinamide in a relapse infection study in mice. Furthermore, the prodrug of VXc-486 appeared to perform at least as well as the Gyrase A inhibitor moxifloxacin. These findings warrant further development of the prodrug of VXc-486 for the treatment of tuberculosis and non-tuberculosis mycobacteria infections.

ABSTRACT NUMBER / ABSTRAKNOMMER: 7

PARAMYXOVIRUSES IN SOUTH AFRICAN SMALL MAMMALS.

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Over 75% of emerging and re-emerging infectious diseases are of zoonotic origin and include pathogens such as Hantavirus, severe acute respiratory syndrome (SARS) coronavirus and West Nile virus. An overwhelming majority of these infectious agents are viral and have their origin in wildlife. Rodents and bats account for approximately 40% and 20% of all mammal species, respectively, and have been identified as reservoir hosts for emerging zoonotic agents that may result in disease in

humans with potentially devastating effects, such as bat-borne henipaviruses causing fatal encephalitis in humans. Paramyxoviruses include some long established human pathogenic viruses i.e. measles and mumps virus as well as some important animal pathogens i.e. canine distemper and avian metapneumovirus. For this project, tissue, faecal pellet and oral swab specimens collected from bats, rodents and shrews are being screened using a highly sensitive and broadly-reactive PCR assay that targets a conserved region within the L-gene of paramyxoviruses. To date, this has yielded paramyxovirus sequences in the insectivorous microbat species, Tardarida aegyptiaca, Taphozous perforates, Myotis tricolor and Neoromicia capensis. Furthermore, paramyxovirus sequences have also been identified in various rodent species; Rhabdomys, Gerbillurus, Aethomys and Mastomys. Phylogenetic inference based on the available fragments suggests that these sequences are rubula-, morbilli-, henipa-, and unclassified paramyxovirus related. Thus far, four of the morbilli-related paramyxoviruses identified in the rodent species, Rhabdomys pumilio were cultured on Vero E6 cells for virus isolation. More comprehensive characterisation of identified paramyxoviruses is ongoing as are screening efforts. This study aims to provide a better understanding of the diversity of these viruses in small mammals in our region, as the identification of animal species associated with potentially emerging and re-emerging zoonotic agents and the characterisation of novel viruses that these animals may harbour as natural reservoir hosts are relevant for the development of control strategies.

ABSTRACT NUMBER / ABSTRAKNOMMER: 8

RADIOLOGICAL PROGRESSION OF LUNG DISEASE IN HIV-INFECTED CHILDREN – A LONGITUDINAL STUDY.

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Background:There is limited knowledge of chest radiographic abnormalities in HIV-infected children in resource-limited settings. Objective:To investigate the natural history of chest radiographic abnormalities in HIV-infected African children, and the impact of anti-retroviral therapy (ART).Methods:A prospective longitudinal study of the association of chest radiographic findings with clinical and immunological parameters. Chest radiographs were performed at enrolment, 6-monthly, when initiating ART and if indicated clinically. Radiographic abnormalities were classified as normal, mild or moderate severity and considered persistent if present for 6 consecutive months/longer. An ordinal multiple logistic regression model assessed the association of enrolment and time-dependent variables with temporal radiographic findings.Results:258 children (median age 28 months; median CD4+ 21%) were followed for a median of 24 months. 70(27%) were on ART at enrolment; 130(50%; median age 33 months) commenced ART during the study.154(60%) had persistent severe radiographic abnormalities, with median duration 18 months. Amongst children on ART, 69% of radiographic changes across all 6-month transition periods were improvements, compared to 45% in those not on ART.Radiographic severity was associated with previous radiographic severity (OR=120.80; 95% CI = 68.71–212.38), lack of ART (OR = 1.72; 95% CI = 1.29–2.27), enrolment age <18 months (OR = 1.39; 95% CI = 1.06–1.83), diffuse, severe radiographic abnormality at enroment (OR = 2.18; 95% CI = 1.33–3.56), hospitalization for LRTI during the previous 6 months (OR = 1.88; 95% CI = 1.06–3.30) and length of follow-up: at 18-24 months (OR = 0.66; 95% CI =

0.49–0.90), and at 30-54 months (OR = 0.42; 95% CI = 0.32-0.56). Conclusion:Most children had severe radiographic abnormalities persisting for at least 18 months. ART was beneficial, reducing the risk of radiographic deterioration or increasing the likelihood of radiological improvement.

ABSTRACT NUMBER / ABSTRAKNOMMER: 9

THE FIRST EVALUATION OF THE DIAGNOSTIC PERFORMANCE OF THE FLUOROTYPE MTBDR ASSAY FOR THE DETECTION OF MYCOBACTERIUM TUBERCULOSIS AND RESISTANCE TO RIFAMPICIN AND ISONIAZID.

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In South Africa the Gene Xpert MTB/RIF assay has been universally implemented as the primary screening tool, however these results need to be confirmed by a secondary assay, namely the Genotype MTBDRplus. This confirmatory test requires extensive laboratory infrastructure to prevent laboratory cross contamination, has multiple steps and only provides limited information on nucleotide variants conferring resistance. Sputum smear positive and smear negative specimens as well as cultured isolates were collected from the National Health Laboratory Services, Cape Town, South Africa. DNA was extracted from the NALC/NaoH decontaminated sputum specimens as well as the cultured isolates using the FluoroLyse and GenoLyse kits according to the manufacturers' instructions. The isolated DNA was analysed with the Fluorotype MTBDR and Genotype MTBDRplus assays according to the manufacturers' instructions. The Genotype MTBDRplus VER 2.0 assay results obtained from cultured isolates was used as the method of comparison to calculate the diagnostic accuracy of the Fluorotype MTBDR assay. The assay was evaluated on a total of 642 samples. The sensitivity for the detection of M. tuberculosis using the Fluorotype MTBDR assay in smear positive sputum specimens, smear negative sputum specimens and cultured isolates was 99.9%, 83.7% and 100% respectively. The sensitivity and the specificity of the Fluorotype MTBDR assay for the detection of M. tuberculosis and rifampicin and isoniazid resistance was highly concordant to that of the Genotype MTBDRplus assay without the subjectivity of visually interpreting the hybridization patterns. These findings were irrespective of smear gradation although however a small number of false negatives were observed when comparing the Fluorotype MTBDR to culture in smear negative specimens. These findings suggest that the Fluorotype MTBDR assay could be implemented as replacement for the Genotype MTBDRplus assay.

ABSTRACT NUMBER / ABSTRAKNOMMER: 10

DIVERSITY AND ECOLOGY OF NOVEL CORONAVIRUSES IN SOUTH AFRICAN BATS.

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Bats are regarded as the reservoir hosts for mammalian alpha- and beta-coronaviruses (CoV). Following the emergence of severe acute respiratory syndrome (SARS) and the subsequent

identification of the Chinese horseshoe bat, Rhinolophussinicus, as the likely source of ancestral SARS-CoV, numerous studies have discovered a wide diversity of bat CoV worldwide. Prior to my study, 15 alpha-CoV sequences had been reported from South African bats, plus one beta-CoV sequence from Neoromiciacapensis, named NeoCoV, which significantly belongs to the same viral species as the recently emerged Middle East Respiratory Syndrome (MERS) CoV. NeoCoV highlights the need to better understand CoV diversity in South African bats. Through a transdisciplinary collaboration with ecologists and zoologists, we conducted general surveillance activities as well as species-specific investigations with a focus on N. capensis.Since 2011, 24 different bat species from 14 genera have been sampled along rainfall and altitudinal gradients across different South African biomes including Fynbos, Forest, Grassland, and Savanna. Using Pan-CoV PCR assays targeting conserved regions of the RNA-dependent RNA polymerase (RdRp) gene, this study has identified 39 additional CoV sequences in various bat species including N. capensis, R. clivosus, Pipistrellushesperidus, and Miniopterusnatalensis. The majority of sequences identified are alpha-CoV with a prevalence of about 20% for N. capensis. Sequences belonging to a recently established group of unclassified alpha-CoV have also been identified in Rhinolophus sp., strengthening the call for a revision of CoVtaxonomy.Of particular interest is the detection of a second NeoCoV in a N. capensis bat as well as a closely related Beta-CoV in two P. hesperidus bats. Preliminary analysis of partial RdRp, nucleocapsid and spike gene fragments suggest that the P. hesperidus virus shares a common ancestor with Neo-CoV.

ABSTRACT NUMBER / ABSTRAKNOMMER: 11

SURVEILLANCE OF HEALTHCARE-ASSOCIATED INFECTION IN HOSPITALIZED SOUTH AFRICAN CHILDREN: WHICH METHOD PERFORMS BEST?

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Introduction: In 2012 the South African Department of Health implemented "The National Core Standards for Healthcare Establishments" which mandated surveillance of healthcare-associated infection (HAI) but made no recommendations of appropriate surveillance methods. Methods: Prospective clinical surveillance (the reference standard) for HAI was conducted in three wards and the intensive care unit (ICU) at Tygerberg Children's Hospital from 1 May to 31 October 2015. Performance of 3 alternative surveillance methods (monthly point prevalence surveys [PPS], laboratory surveillance and tracking of antimicrobial prescriptions) was compared to the reference standard. Factors associated with failure to detect HAI were identified by multivariate logistic regression. Results: Overall HAI incidence rate was 31/1000 patient days [95%CI 28.2 – 34.2]. Clinical surveillance (the reference standard) detected 417 HAI events among 1347 paediatric hospitalizations. Alternative surveillance methods showed variable sensitivity: repeated PPS (104/417 [24.9%; 95%CI 21-29.3%]), laboratory surveillance (202/417 [48.4%; 95%CI 43.7–53.2%]) and antimicrobial prescriptions (277/417 [66.4%; 95%CI 61.8–70.8%]). Combining antimicrobial and laboratory surveillance data improved sensitivity of HAI detection to 84.7% (95%CI 80.9 – 87.8%). Factors associated with failure to detect HAI included patient transfer (OR 2.0; 95%CI 1.01-3.07), a single HAI event (OR 2.8; 95%CI 1.53-5.09), age category 1-5 years (OR 2.1; 95%CI 1.08-3.98) and admission to a general ward (OR 2.3; 95%CI 1.48-3.51). Conclusion: Repeated PPS and analysis of laboratory and/or antimicrobial prescription data are feasible HAI surveillance methods for low-resource settings. South African paediatric healthcare facilities should individualise HAI surveillance, selecting a method suited to available resources and practice context.

ABSTRACT NUMBER / ABSTRAKNOMMER: 12

PERCUTANEOUS PERICARDIOSCOPY IN A POPULATION WITH A HIGH PREVALENCE OF TUBERCULOUS PERICARDITIS – IMPROVING THE DIAGNOSTIC YIELD AND ADVANCING THE TIME TO DIAGNOSIS.

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Objectives: Tuberculous pericarditis remains an important cause of morbidity and mortality in the developing world. Definitive diagnosis via direct identification of the mycobacterium bacillus is challenging and not always possible via conventional investigations. Previous studies have demonstrated a low yield of acid fast bacilli (AFB) or Mycobacterium tuberculosis culture on pericardial fluid alone. We set out to evaluate the potential advantage and safety of minimally invasive percutaneous pericardioscopic biopsy of the pericardium in tuberculous (TB) pericarditis.Methodology: All patients presenting with a moderate-to-large pericardial effusion (epicardial separation distance > 10mm) were offered participation. Each patient underwent pericardiocentesis via a standard procedure followed by percutaneous pericardioscopy and pericardial biopsy via a flexible fiber-optic pericardioscope. Pericardial fluid evaluation included biochemistry (including adenosine deaminase level), cell count, AFB's and TB culture. Pericardial biopsy specimens were evaluated for AFB's, TB culture and histologically for granulomas. Results: 62 patients participated. 31 presented in cardiac tamponade and 35 were HIV positive. Pericardial biopsy could be obtained in 51 patients, all of which were uncomplicated. 31 (60.7%) were found to have definite pericardial TB, and a biopsy was achieved in 28 of these. A definite diagnosis of pericardial tuberculosis was made in 26 of the 28 (92.8%) via biopsy, whilst fluid missed the diagnosis in 7 (25%). Eleven (39.2%) of the 28 were AFB positive on pericardial biopsy and six (21.4%) had histological evidence of granulomas. Only one of the 28 was AFB positive on fluid and 21 fluid samples subsequently cultured TB within 41 days (mean time 22 days). An alternative diagnosis was made in 13 of the remaining 20 patients. Conclusions: In contrast to the assessment of pericardial fluid where a definite diagnosis of TB is dependent on culture, pericardial biopsy enables a more reliable and rapid diagnosis.

ABSTRACT NUMBER / ABSTRAKNOMMER: 13

MOLECULAR DETECTION OF MYCOBACTERIUM TUBERCULOSIS IN STOOL OF CHILDREN WITH SUSPECTED INTRATHORACIC TUBERCULOSIS.

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Background: The confirmation of Mycobacterium tuberculosis (MTB) disease in children is challenging. The current diagnostic gold standard, liquid culture of respiratory samples, has low sensitivity in paucibacillarypaediatric tuberculosis (TB), and sputum collection in young children is relatively invasive and resource-intensive. Stool is easy to collect and may contain MTB DNA from swallowed sputum. However, the performance of PCR assays, including Xpert MTB/RIF (Xpert) may be affected by PCR inhibition from stool enzymes and by instrument failure due to particulate matter blocking

filters. We tested lyophilization and DNA extraction before Xpert analysis to reduce errors and improve assay sensitivity. Methods: The bacteriological reference standard (confirmed TB) was Xpert and culture of up to 6 respiratory specimens collected from children with suspected intrathoracic TB enrolled in a large prospective diagnostic study. Stool specimens were obtained; one part was tested by a direct Xpert protocol; the 2nd part was frozen for lyophilisation.DNA was extracted from lyophilised stools using a manual commercial kit (Qiagen, Germany). DNA was inserted into the Xpert cartridge using a modified "tube-fill" protocol. The lyophilisation/DNA extraction method was compared to the direct Xpert protocol.Results: A representative sample of 44 stools was tested. Twenty six children initiated TB treatment based on a clinical diagnosis: 16 (62%) were confirmed by at least 1 respiratory culture/Xpert. The sensitivity and specificity of direct stool Xpert were 44% and 100% respectively vs. 44% and 86% for the lyophilisation/DNA method. The lyophilisation/DNA method detected 4 additional positives on bacteriologically negative patients: 2 had a clinical TB diagnosis and 2 had an alternative diagnosis.Conclusions: The diagnostic performance of Xpert MTB/RIF using stool can be improved by initial lyophilisation and DNA extraction. Further optimization and method simplification is necessary to propose stool as a non-invasive specimen type for rapid confirmation of TB in children.

ABSTRACT NUMBER / ABSTRAKNOMMER: 14

HIV-1 DIVERSITY AND DRUG RESISTANCE MUTATIONS DETECTED IN THE EASTERN CAPE PROVINCE, SOUTH AFRICA.

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Background: South Africa forms the epicenter of the AIDS pandemic with 6.8 million individuals infected. An estimated 3.1 million are receiving antiretroviral treatment (ART), the highest number globally. The aim of this study was to characterize and sequence the HIV-1 protease (PR), reverse transcriptase (RT) and integrase (IN) regions of the pol gene in both urban and rural regions of the Eastern Cape Province. Methods: During 2014, we received samples from 592 Eastern Cape patients for diagnostic HIV-1 drug resistance testing. After RNA isolation, the PR and partial RT regions of the pol gene were amplified by RT-PCR and directly sequenced. Residual sample from 309 patients were used to sequence the IN gene. Online subtyping tools were used for preliminary subtyping. The Stanford drug resistance database was used to identify DRMs. Multiple sequence alignments were done with MAFFT and codon aligned. Maximum likelihood phylogenetic inference was done with MEGA. Results: The age of the patients ranged from 12 months to 67 years and included 65.5 % females and 34.5 % males. Subtyping and phylogenetic analysis indicated that the majority of the samples were subtype C, but we also detected subtypes A, B and different unique recombinant forms (URFs). Eighty three percent of the patients had DRMs and a total of 5.1% of the sequences had both NNRTI, NRTI and PI DRMs. Additionally, 15.3% of the sequences had accessory mutations in the integrase region and 0.75% had major IN mutations. Conclusion: It is of concern that we detected a high number of DRMs. We also detected rare subtypes and recombinants. With a complex epidemic that is constantly evolving, it is of utmost importance to monitor continuously for DRMs and evolving HIV-1 subtypes.

Posters/Plakkate

ABSTRACT NUMBER / ABSTRAKNOMMER: 15

NEAR FULL-LENGTH GENOME (NFLG) CHARACTERIZATION OF HIV-1 SUBTYPE B IDENTIFIED IN SOUTH AFRICA.

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BACKGROUND: HIV-1 infection in South Africa occurred in 1982, which was initially spread by MSM. In South Africa 2 separate epidemics have been described. The majority of these infections are caused by HIV-1 subtype C, spread through heterosexual contact. The minor subtype B epidemic in South Africa was in the past transmitted via MSM contact. We recently described the detection of new BC URFs circulating in the country. This indicates that both epidemics are still co-circulating in South Africa.METHODS: Ten samples were selected for NFLG amplification. Seven of the samples were obtained from the late 1980's while the other three samples were from recent infections. The NFLG amplification was performed using a PCR protocol designed to target two overlapping 5.5 kb fragments. There after samples were sequenced, and preliminary subtyped using online subtyping tools. Multiple sequence alignments were first done using Clustal and then codon aligned. Maximum likelihood phylogenetic analysis was performed. RESULTS: The six 1980s samples were obtained from MSM in the Western Cape. The others obtained were from a 16 year old heterosexual teenager in Gauteng, one woman from the Eastern Cape and one woman from the Western Cape. Two of the subtype B near full-length sequences obtained cluster with reference subtype B strains from the 1980s. Three sequences cluster more closely with reference strains from the late 1990s.DISCUSSION: We have detected and characterized the NFLG of HIV-1 subtype B, circulating in South Africa since the early 1980s to 2000s. This subtype B epidemic did cross over into the heterosexual population as indicated by infection of both children and women and in different provinces of South Africa. Of concern is also the subtype BC URF. We have to keep on monitoring the epidemic to reconstruct the epidemiology and evolutionary history of HIV-1 in South Africa.

ABSTRACT NUMBER / ABSTRAKNOMMER: 16

EVALUATION OF THE EFFECTIVENESS OF DOSE INDIVIDUALISATION TO ACHIEVE THERAPEUTIC VANCOMYCIN CONCENTRATIONS.

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INTRODUCTION: The glycopeptide antibiotic vancomycin is used for treatment of methicillin resistant gram positive cocci. Adequate vancomycin plasma concentrations are related to bacterial cure. Achieving therapeutic concentrations is complicated by interpatient variability. We conducted a retrospective observational study (1st -31st December 2014) including patients achieving therapeutic vancomycin concentrations and compared it with a prospective (1st - 31st December 2015) dose individualisation intervention to inform vancomycin dose adjustment at Tygerberg Hospital. METHODS: Prescribers were provided with guidelines on dosing vancomycin and timing of vancomycin concentration monitoring during both study periods. During the prospective period, all vancomycin concentration monitoring were followed by dose individualisation using Bayesian modelling software (MwPharm++). A sample size of 86 (43 in each study) provided power of 80% to detect a difference of 30% at α level <0.05. RESULTS: The retrospective study included 77 patients with 292 vancomycin concentrations: 69% (53/77) adults and 31% (24/77) paediatric patients. The prospective study included 80 patients with 217 vancomycin concentrations measured: 69% (55/80) adults and 31% (25/80) paediatric patients. Less vancomycin monitoring were observed during the interventional study with a median (IQR) of 2 (1-3) vancomycin concentrations per patient compared with a median (IQR) of 3 (1-5). Overall the proportion of patients achieving a therapeutic vancomycin concentration increased from 45% to 54% (p=0.12) when individualising dosing. Dose individualisation efficacy was statistically significant in patients on continuous infusions with an increase in the proportion of therapeutic vancomycin concentrations from 46% to 72% (p<0.05). In patients on intermittent infusions the increase in proportion of therapeutic vancomycin concentrations

was 44% to 48% (p=0.67). Compliance (following dosing instructions and implementation of dose individualisation advice) was associated with therapeutic vancomycin concentrations (p<0.01). CONCLUSION: We found that appropriately dosed vancomycin followed by dose individualisation using Bayesian modelling improved achieving therapeutic target concentrations while requiring less vancomycin monitoring.

ABSTRACT NUMBER / ABSTRAKNOMMER: 17

THE IDENTIFICATION OF NOVEL PROTEINS INVOLVED IN IRON-SULPHUR CLUSTER BIOGENESIS IN MYCOBACTERIA.

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Mycobacterium tuberculosis remains a public health threat. Given the emergence of drug resistance, it is imperative that we improve our understanding of the pathogenesis of Mtb, in order to develop new anti-TB drugs and strategies for shortening drug treatment. Iron-sulphur clusters are ubiquitous cofactors required for the maturation of various proteins, many of which are involved in essential biological processes. Multiprotein complexes are required for the in vivo assembly of Fe-S clusters, and the SUF system, encoded by the Rv1460-Rv1461-Rv1462-Rv1463-csd-Rv1465-Rv1466 operon in Mtb, is thought to be the major Fe-S cluster biogenesis machinery. This process is poorly understood in mycobacteria, and it is currently unclear if proteins outside of this operon are involved in Fe-S cluster biogenesis. In this study, we sought to identify novel proteins involved in Fe-S cluster assembly. We employed affinity purification and mass spectrometry to identify proteins that interact with the SUF machinery. Utilising this method, we were able to demonstrate affinity enrichment for Fe-S cluster assembly proteins, and Fe-S cluster-containing enzymes, as well as identify potential novel interacting partners. This work has established the methodology for identifying novel protein-protein interactions, and lays the foundation for elucidating the process of Fe-S cluster assembly in mycobacteria.

ABSTRACT NUMBER / ABSTRAKNOMMER: 18

EVALUATION OF HOST MARKERS FOR TRACKING EARLY TREATMENT RESPONSE IN NEWLY DIAGNOSED PULMONARY TB PATIENTS: EARLY BACTERICIDAL ACTIVITY (EBA) STUDY.

DOLAPO AWONIYI* (Stellenbosch University - Biomedical Sciences)

Background: The development of simple and rapid immunological biomarkers that indicate early drug efficacy would reduce the cost of clinical trials and furthermore accelerate new drug development for the treatment of TB. We investigated the profiles of inflammatory markers of active TB patients undergoing treatment and attempted to identify biomarkers that correlate with early treatment response as assessed by early bactericidal activity (EBA). Methods: One hundred newly diagnosed pulmonary TB patients who were taking part in a 14 day phase II EBA clinical trial were randomized into 7 treatments arms. The first six treatment arms received different doses of single or drug combinations while the seventh treatment arm received Rifafour e-275 as the positive control. Sputum and serum samples were collected simultaneously at the start (D0) and end of EBA (D14). The sputum bacterial load was determined by time to culture positivity and colony forming units while

a total of 33 host markers were measured in the serum using the Luminex platform.Result: There was a significant change in the expression of CRP, IL-6, VEGF, sIL-2Rα, Ferritin, and sTNFRII from D0 to D14. CRP was the single marker with the largest difference. The combination of the cytokines SAP, CRP, VEGF and MDC accounted for 28% variation observed in TTP while the cytokines CRP and sIL-2Rα predicted 15% of the variation in CFU. Conclusion: The findings from our study suggest that cytokines are not a suitable replacement for CFU in the assessment of EBA. Activation markers such as CRP if measured early may be a valuable adjunct in monitoring TB therapy.

ABSTRACT NUMBER / ABSTRAKNOMMER: 19

COMBINED SPECIFIC IGG- AND IGA-BASED DIAGNOSIS OF TUBERCULOSIS IN AFRICAN PRIMARY HEALTHCARE CLINIC ATTENDEES WITH SIGNS AND SYMPTOMS SUGGESTIVE OF TB.

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Background: IgG-based tests for the diagnosis of active tuberculosis (TB) disease often show a lack of specificity in TB endemic regions, which is mainly due to a high background prevalence of latent TB infection (LTBI). Here, we investigate the combined performance of the responses of different Ig classes to selected mycobacterial antigens in primary healthcare clinic attendees with signs and symptoms suggestive of TB.Methods: We evaluated the sensitivity and specificity of serologic IgA, IgG and/or IgM to LAM and 7 mycobacterial protein antigens (ESAT-6, Tpx, PstS1, AlaDH, MPT64, 16kDa and 19kDa) and 2 antigen combinations (TUB, TB-LTBI) in the plasma of 42 other respiratory diseases individuals, separated into 21 LTBI controls and 21 uninfected healthy controls, and 21 active TB patients at baseline, of whom 19 were followed up at month 6 at the end of anti-TB treatment. Results: The leading single serodiagnostic markers were anti-16 kDa IgA, anti-MPT64 IgA, anti-LAM IgG and anti-TB-LTBI IgG. IgA responses to MPT64 and 16kDa had the highest sensitivity/specificity of 95%/95% and 95%/90% in differentiating active TB from other respiratory diseases and active TB from LTBI controls, respectively. The combined use of 3 or 4 antibodies further improved this performance to accuracies above 95%. After successful completion of anti-TB treatment at month 6, only particularly anti-TUB IgG showed distinctively decreased levels. Conclusions: These results show the potential of combining IgG and IgA responses against selected protein and non-protein antigens in differentiating active TB from other respiratory diseases in TB endemic settings, and may provide a benchmark for vaccines.

ABSTRACT NUMBER / ABSTRAKNOMMER: 20

A BIOSIGNATURE OF SIX ANALYTES DETECTED TB IN HIV-UNINFECTED AFRICAN ADULTS USING OVERNIGHT WHOLE BLOOD ASSAY.

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Background: The difficulty in diagnosing TB disease especially with HIV co-infection is a major obstacle in the control of TB in Africa.Methods: Prospectively, we assessed the diagnostic potential of host markers detected after blood from 322 individuals with suspected TB disease from six African sites, was stimulated with four different Mtb antigens. Antigens (Rv0081, Rv1284, ESAT-6/CFP-10, and Rv2034) were evaluated in a 24 hour whole blood stimulation assay (WBA). The concentrations of 42 host markers in the WBA supernatants were measured using the Luminex multiplex platform. Diagnostic biosignatures were investigated through the use of multivariate analysis techniques.Results: Amongst the 322 participants suspected of having TB disease, 17% were HIV infected, 106 were confirmed to have active TB disease and in 216 participants TB was excluded.

Unstimulated concentrations of CRP, SAA, ferritin and IP-10 were the most promising single markers for discriminating between TB and non TB but concentrations in stimulated samples had lesser discriminatory power. Accuracy of marker combinations by general discriminant analysis (GDA) showed that a six analyte prediction model accurately predicted 77% of the TB cases and 84% of the non TB cases, with a better performance in HIV uninfected patients.Conclusions: These results demonstrate that the best performing biosignature comprising 6 cytokines obtained after stimulation with four Mtb antigens has only moderate potential as a diagnostic tool for pulmonary TB disease especially in HIV uninfected. Stimulation with the four selected Mtb antigens did not improve test performance above that of unstimulated.

ABSTRACT NUMBER / ABSTRAKNOMMER: 21

BIOMECHANICAL ANALYSIS OF SPECIFIC MOTOR IMPAIRMENTS CONTRIBUTING TO EARLY FUNCTIONAL DECLINE IN ADULTS LIVING WITH HIV/AIDS - SUB-STUDY TO THE CAPE WINELANDS HAART TO HEART STUDY.

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Advanced therapies have transformed HIV/AIDS into a chronic disease. Although people living with HIV/AIDS (PLHIV) can achieve a normal life expectancy, the prevalence of neuro-motor impairments remains a concern. There currently exists a poor understanding of how gait and balance is objectively affected in PLHIV. This project aims to provide biomechanical information about movement impairments of PLHIV. It further aims to correlate the findings of a clinical test to 3D motion analysis, self-perceived function, and falls. Phase I is currently being conducted at the SU CAF 3D Human Biomechanics Unit to validate a new portable 3D-motion analysis system (myoMOTION) against the gold standard (VICON) and to determine reliability. Participants include 16 healthy HIV- adults from SU, and 16 community participants (HIV+ and HIV-). Three-dimensional pelvis, hip, knee and ankle kinematics obtained during 12 gait trials will be used for analysis. Preliminary results from the 16 SU participants suggest that data for the two systems are well correlated in a healthy cohort with normal motor function. Phase II is a cross-sectional sub-study of the Cape Winelands HAART to HEART study, being conducted in Worcester, using the same participants. The objectives of this phase will answer the overall aim of the project. Data collection involves the completion of questionnaires and a clinical functional assessment. Biochemical, medical and demographic data are extracted from the main study. Three-dimensional capture involves single leg stances and ten gait trials. Temporal-spatial variables as well as 3D-kinematic parameters of the lower limb joints will be analysed. These data will be correlated with subjective function and fall history. Biomechanical analyses can improve understanding of functional decline in PLHIV, potentially informing the design of targeted interventions. Furthermore, the comprehensive data-set will allow identification of appropriate clinical test(s) for early screening of functional decline in PLHIV at community level.

ABSTRACT NUMBER / ABSTRAKNOMMER: 22

A RETROSPECTIVE STUDY EVALUATING THE EFFICACY OF IDENTIFICATION AND MANAGEMENT OF SEPSIS AT A WESTERN CAPE PROVINCE DISTRICT LEVEL HOSPITAL INTERNAL MEDICINE DEPARTMENT, IN COMPARISON TO THE GUIDELINES STIPULATED IN THE SURVIVING SEPSIS CAMPAIGN 2012.

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Background: Currently there is little data on identification, management and outcomes of patients with sepsis in developing countries. Simple cost effective measures such as accurate identification of

patients with sepsis and early antibiotic administration are achievable targets that are within reach without having to make use of unsustainable protocols constructed by developed countries.Aims: The aim of our study is to assess the efficacy of clinicians at identifying and managing sepsis. Furthermore we will assess the outcome of patients in terms of in-hospital mortality and length of hospital stay given the above management.Methods: A retrospective study design was applied when analyzing data from the routine burden of disease audit done at Karl Bremer Hospital.Results: The total sample size obtained was 70 patients. A total of 18/70 (26%) patients had an initial triage blood pressure indicative of sepsis induced hypotension however only 1/18 (5.5%) of these patients received an initial crystalloid fluid bolus of 30ml/kg. The median time for antibiotic administration in septic shock was 4.65 hours. Further a positive delay in antibiotic administration (p value= 0.0039) was demonstrated. The data showed 8/12 (66%) of patients with septic shock received inappropriate amounts of fluids. The in-hospital mortality for sepsis was found to be 4/24 (17%), for severe sepsis 11/34 (32%) and a staggering 9/12(75%) for septic shock. For every 1 hour delay in antibiotic administration a 7% increase in mortality was found (OR=1.07, P value= 0.027, CI 95%= 1.008-1.14). Lastly for patients that received early aggressive intravenous fluid therapy showed a 67% reduction in the risk of death (OR=0.33, Pvalue=0.040, CI 95%=0.11-0.95). Conclusion: The outcomes of the study concluded that there is room for improvement with regards to the initial classification process and management of sepsis by our clinicians.

ABSTRACT NUMBER / ABSTRAKNOMMER: 23

DECIPHERING THE GENETIC SUSCEPTIBILITY TO A RARE CHILDHOOD FORM OF TB, TUBERCULOUS MENINGITIS (TBM).

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Tuberculous meningitis (TBM) is a type of extrapulmonary TB which leads to inflammation of the meninges through small lesions called Rich foci. TBM represents 1% of total TB infection, with the age of onset being around 2-5 years of age. We hypothesised that common and rare SNPs affect TBM disease pathogenesis either synergistically or independently through the common disease, common variant or rare variant burden hypotheses respectively. Exome sequencing in 20 participants assessed the rare SNP portion of the study. Rare SNPs were subjected to both SKAT-O and SKAT Common Rare gene-set association testing. SKAT-O tested the rare variant portion, whereas SKAT Common Rare assessed the cumulative effect of common and rare SNPs upon TBM susceptibility through MAF weighting. Common SNPs were assessed using the Multi-Ethnic Genotyping Array (MEGA) from Illumina. 118 TBM cases were compared to 477 healthy controls in a genome-wide association analysis. Association tests were corrected for both ancestry and gender with the exclusion of age as cases were significantly younger than controls. Results from SKAT-O and MEGA array association testing showed no significant results, whereas SKAT common rare testing produced a single significant result, that of CCP110 which has not previously been found to be associated with TBM. The lack of significance found in several of the association tests is not surprising due to the small sample size inducing a lack of study power, especially when the number of covariates is considered. A threshold of p=0.01 was implicated for Ingenuity Pathway Analysis for the top hits of each analysis. In this, several genes of interest were investigated and their functional relevance suggested TBM involvement, however, replication in a larger sample cohort is needed. This study represents the first exome sequencing and GWAS of a TBM cohort and has provided suggestive results for future functional verification.

ABSTRACT NUMBER / ABSTRAKNOMMER: 24

THE EFFECT OF HIV ON VULVAR CANCER.

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Background and Aims: Vulvar cancer in young women, like cervical cancer, is associated with oncogenic HPV. HIV-infected women are more likely than others to have persistent HPV, because of a decreased ability of immune-compromised women to clear HPV. HPV-related cervical cancer presents 10 years earlier in HIV-infected women than in others, and with a more advanced stage of disease. We therefore hypothesized that HIV-infected women with vulvar cancer would be younger, have more advanced disease at diagnosis, and have poorer survival than HIV-uninfected women. Methods: We conducted a chart review of women diagnosed with vulvar cancer at the Tygerberg Hospital gynaecology oncology unit between January 2005 and December 2014. Data were censored on 31 December 2015. After restaging with the 2009 FIGO criteria, we compared HIV-infected and uninfected patients with respect to age, stage, and outcomes and developed Cox regression models of one-year mortality. Results: Of 130 women with vulvar cancer, the 40 (30%) who were HIV-infected were significantly younger than the 90 uninfected patients (mean age 38.7 years vs 57.5 years; $p<0.001$). A larger proportion (65% vs 51.1%) were diagnosed with FIGO stage III or IV disease, although the difference was not statistically significant ($p=0.15$). In a Cox regression model controlling for stage, HIV-infected patients were 2.52 times more likely to die of vulvar cancer within one year than uninfected patients ($p=0.04$).Conclusions: HIV-infected women with vulvar cancer were significantly younger at diagnosis and have poorer disease-specific survival than HIV-negative women.

ABSTRACT NUMBER / ABSTRAKNOMMER: 25

CHANGES IN IN VITRO IMMUNE RESPONSES IN AFRICAN BUFFALOES (SYNCERUS CAFFER) FOLLOWING THE TUBERCULIN SKIN TEST.

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The tuberculin skin test (TST) is the most commonly used test of Mycobacterium bovis infection in animals and is important for bovine tuberculosis (bTB) eradication programs. In addition, in vitro immunological tests, such as the interferon-gamma (IFN-ɣ) release assay (IGRA), are used; however, studies have shown that the TST may influence subsequent IGRA results. We aimed to investigate the effect of the TST on antigen-induced cytokine production in M. bovis infected African buffaloes. Buffaloes from the HluhluweImfolozi Park, KwaZulu Natal, (n=283) were captured and chemically immobilized. Whole blood was collected and a tuberculin skin test (TST) was performed at this time. Blood aliquots were incubated with saline, pokeweed mitogen, PPD (bovine, avian), PC-HP and PC-EC peptides. The M. bovis infection status of the animals was determined using the commercial Bovigam® assay. After 3 days, all Bovigam®-positive animals and 20 Bovigam®-negative animals were immobilised and whole blood was collected and stimulated as before. The Bovigam® assay was repeated and IFN-ɣ and interferon gamma-inducible protein 10 (IP-10) were measured at both time points. The IFN-ɣ response to bovine PPD and PC-HP peptides was significantly greater pre-TST than post-TST. 51 animals tested Bovigam®-positive prior to the TST while 44 tested positive post-TST. Moreover, the release of IP-10 prior to the TST was significantly greater than 3 days thereafter. In vitro cytokine production decreased post-TST and this result contradicts findings from other studies. However, as the present study was done in a wild population, a number of variables may have influenced our findings. The reduction in cytokine production post-TST appeared to result in an increase in the number of animals with false negative test results. Therefore, where the Bovigam®

assay is used as an ancillary test to the TST in buffaloes, blood collection should take place at the time of the TST.

ABSTRACT NUMBER / ABSTRAKNOMMER: 26

DECREASED SENSITIVITY AND INCREASED INDETERMINATE RATES OF GENOTYPE MTBDRPLUS (V2.0) ARE ASSOCIATED WITH USE OF INAPPROPRIATE PCR RAMP RATE: IMPLICATIONS FOR ROUTINE DIAGNOSTIC LABORATORIES.

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Background: GenoTypeMTBDRplus (v2.0) (MTBDRplus) is a molecular assay for the detection of rifampicin and isoniazid susceptibility in Mycobacterium tuberculosis. The manufacturer recommends the assay be done on clinical specimens (irrespective of smear status) or culture isolates. In South Africa, MTBDRplus is done directly on smear-positive specimens and indirectly on culture-positive isolates grown from smear-negative specimens. A previous study done at the South African National Health Laboratory Service (NHLS) describes the sensitivity of MTBDRplus for TB detection as equivalent to that of Xpert MTB/RIF on smear-negative specimens, however, as part of internal validation studies, the NHLS have found MTBDRplus to have suboptimal low sensitivity and high indeterminate rates when done on smear-negative specimens. Aim: To investigate the effects of thermocycler ramp rate (the rate of temperature change per second in the PCR machine) on MTBDRplus indeterminate rate in smear-positive and smear-negative specimens. Methods: 107 decontaminated sputa (52 smear-positive, 55 smear-negative) were tested using MTBDRplus at ramp rates of 2.7°C/s and 2.2°C/s. Results and Discussion: Indeterminate rates on smear-positive specimens were similar irrespective of ramp rate. In contrast, the ramp rate influenced the sensitivity and indeterminate rate when MTBDRplus was done on smear-negative specimens. Of the 55 smear-negative specimens, those tested with a ramp rate of 2.7°C/s produced 55 (100%) indeterminate results. When these same smear-negative specimens were tested at a ramp rate of 2.2°C/s, 7 specimens had indeterminate results indicating an 87% improvement. By using the correct ramp rate, there was a marked improvement in the indeterminate rate when MTBDRplus was done on smear-negative sputa. Conclusion: Routine diagnostic laboratories should ensure they use the correct ramp rate for the MTBDRplus line probe assay, which will enable them to perform the test directly on smear-negative specimens and reduce diagnostic delay.

ABSTRACT NUMBER / ABSTRAKNOMMER: 27

INVESTIGATING RECURRENCE OF TUBERCULOSIS DUE TO RELAPSE AND REINFECTION USING WHOLE GENOME SEQUENCING.

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Recurrent tuberculosis, defined as active tuberculosis among patients who have recovered from a previous disease episode, contributes greatly to the tuberculosis burden in high incidence settings. Recurrent tuberculosis occurs due to endogenous reactivation or due to exogenous reinfection with M. tuberculosis. Closely related, highly transmissible strains of M. tuberculosis with varying drug resistance profiles may circulate in an epidemic, warranting the need to accurately discriminate between relapse and reinfection. Twenty-five paired patient isolates showing recurrent disease due to relapse were selected for whole genome sequencing. The pairs selected demonstrated identical IS6110 fingerprints for the first and second episode isolates. Variant comparisons were done to determine evolutionary distances between paired isolates. Twenty two paired isolates showed 0-2 variant differences between the index- and second episode of tuberculosis. Paired isolates from one patient showed 20 variant differences, suggesting reinfection with a closely related exogenous strain. Two isolates showed 757 and 833 unique heterogeneous variants (with a variant frequency less than 30%) in the isolate from the second episode, respectively, while the index isolate showed 0 unique variants. Among these heterogeneous variants in the second episode, were drug resistance-conferring SNPs. We hypothesise that reinfection with an exogenous strain reactivated the isolate from the index episode, resulting in a mixed infection and possible underlying drug-resistance. Alternatively, the patient was not fully cured of the index episode when reinfection occurred, resulting in mixed infection. Whole genome sequencing used in conjunction with relaxed variant filtering approaches allows for the identification of underlying bacterial populations. This study shows that the resolution of whole genome sequencing is superior to that of IS6110 RFLP scoring algorithms to detect mixed infections. It also highlights the complexities when classifying recurrent tuberculosis cases as relapse or reinfection in a high incidence setting with a high infection pressure and highly similar circulating strains.

ABSTRACT NUMBER / ABSTRAKNOMMER: 28

A NOVEL DRIED BLOOD SPOT POOLING STRATEGY FOR DIAGNOSING ACUTE HIV INFECTION IN RESOURCE LIMITED SETTINGS.

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Background: Rapid HIV antibody tests are used for diagnosis of adults and older children in resource limited settings. However rapid antibody assays do not detect virus RNA or antigen, which is present before seroconversion, and may miss early infections with low antibody levels. As phlebotomy is not readily available we investigated pooled Dried Blood Spot (DBS) HIV- 1 RNA testing to diagnose acute HIV infection. Methods: DBS was collected from Voluntary Counselling and Testing (VCT) clients who tested negative on the Advanced QualityTM HIV antibody test screening assay. Five patient DBS samples were pooled, eluted in sample pre-extraction reagent (SPEX) buffer and tested on the CAP/CTM HIV-1 Test v2 (Roche). If a pool had a positive HIV-1 RNA load (> 200 copies/ml) the individual patient DBS was tested. Confirmation of acute infection and Fiebig staging comprised of viral load testing, two fourth-generation HIV serology assays, one which differentiates HIV antibody and p24 antigen, and Geenius™ HIV 1/2 Supplemental Assay (Bio-Rad) for antibody band identification. Results: Four hundred and eighty-two patient samples were tested. Two (0.4%) DBS samples with RNA loads> 200 copies/mL, were excluded: 1 antibody screening test positive, inappropriate DBS collection; 1 sample which was insufficient for individual testing. One sample (0.2%) had true acute HIV infection in Fiebig stage 5. Serology assays were low HIV antibody

positive; the plasma HIV-viral load was 15 929 HIV-1 RNA copies/ml, gp160 and gp41 antibody bands were positive and the p31 band (indicating chronic infection) was negative. Conclusion: Pooled DBS HIV-1 RNA has the potential to diagnose acute HIV infections in resource limited settings where phlebotomy is unavailable. This would allow for the early identification of patients with highly infectious acute HIV infections, who could be enrolled into early antiretroviral therapy for their own health benefit and to prevent transmission to others.

ABSTRACT NUMBER / ABSTRAKNOMMER: 29

LESSONS LEARNED WITH THE IMPLEMENTATION OF HOUSEHOLD TB.

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BACKGROUND: HPTN 071 (PopART) (Population Effects of Antiretroviral Therapy toReduce HIV Transmission) is a community-randomized trial of theimpact of a combination prevention package on population-level HIV incidence in Zambia and South Africa. TB screening is onecomponent. TB is the number one cause of death in South Africa.The standard of care for TB diagnosis is passive case finding whenclients visit healthcare facilities or when hospitalized.METHODS: Community HIV Care Providers (CHiPs) deliver the combinationprevention package door-to-door. CHiPs collect two spot sputumsamples from clients with TB symptoms. Client details (and results)are recorded into an electronic data capture device (EDC) and a TBsuspect register. Sputum samples are couriered to the NationalHealth Laboratory Service (NHLS) for testing (GeneXpert andsmear). Results are sent to the site office. CHiPs return results toclients. TB positive clients are referred to local health care facilitiesfor treatment. We reviewed the challenges and strategiesimplemented for the improvement of household TB screening,diagnosis, and initiation of TB treatment in PopART. RESULTS: Challenges· Mismatch of information· Sputum samples leaked; one or no samples collected· Results captured under the local health facility· Results not returned in time.· Missing samples· Bridging the gap between the community and health care facilities.Strategies· Retraining.· Hired a Nurse mentor and designated driver.· Weekly review; return to houses to collect sputum.· Implemented a barcoding system.· Strengthened relationships.Improvements· Recording errors and leakages decreased.· Two sputum samples increased.· Gained access to NHLS' database to track results.· All samples are delivered.· Initiation of treatment increased.CONCLUSION: Household screening for TB is logistically

difficult if tests are done ina centralized laboratory. Implementing basic strategies and goodM&E led to improved services.

ABSTRACT NUMBER / ABSTRAKNOMMER: 30

A RETROSPECTIVE IMMUNOHISTOCHEMICAL ANALYSIS OF CENTRAL NERVOUS SYSTEM GRANULOMAS IN PATIENTS WITH TUBERCULOUS MENINGITIS.

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Tuberculous meningitis (TBM) is one of the most devastating clinical manifestations of tuberculosis (TB), causing high morbidity and high mortality. Granulomas form the hallmark of TB and play an important role in the onset of TBM. Recent histological studies from our research group have distinguished three different types of granulomas within the central nervous system (CNS) of TBM patients: non-necrotizing-, gummatous- and abscess type granulomas. The current study systematically analyzes histopathology of infected human brain tissue using immunohistochemistry to identify specific cell markers and crucial cytokines within the different types of granulomas. Forty post-mortem specimens of TBM patients, diagnosed between 1976 and 2010 in South Africa were included. Within these specimens a total of 86 granulomas were identified (37 non-necrotizing-, 18 gummatous- and 31 abscess granulomas). CD68+ macrophages and microglia cells were the main cell type. Myeloperoxidase (MPO) positive neutrophils were present in all the necrotic areas, suggesting that inflammation may be a key factor in the progression of granulomas. An interference region was identified surrounding the necrotic areas, containing CD68+ foamy macrophages, CD68+ epithelioid cells and the pro-inflammatory cytokines tumor necrosis factor alpha (TNF-α) and interferon gamma (IFN-γ). CD20+ B-cells were found within aggregates in the outer cell layers of the granulomas. Mycobacterium tuberculosis was present in 28% of the granulomas (23.3% non-necrotizing-, 35.3% gummatous- and 28.6% abscess type granulomas) and localized within the necrotic areas and in small aggregates between the cell layers. In conclusion, this study provides a foundation to understand the pathological mechanisms driving the granulomatous reaction within the CNS by revealing the spatio-temporal organization of the different types of granulomas. An important basis for further research is provided, to gain deeper insight into the pathogenesis of TBM which is essential in the development of novel treatment and diagnostic approaches.

ABSTRACT NUMBER / ABSTRAKNOMMER: 31

THE USE OF WHOLE EXOME SEQUENCING METHODS TO IDENTIFY NOVEL DISEASE-CAUSING VARIANTS IN SOUTH AFRICAN PATIENTS WITH PRIMARY IMMUNODEFICIENCY DISEASES (PIDS).

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Rapid developments in high throughput sequence capture methods as well as in next generation sequencing (NGS) have made whole exome sequencing (WES) both technically feasible and more cost-effective. Moreover, the success of WES in the discovery of novel disease-causing mutations in numerous rare diseases is well established. While NGS data acquisition is relatively simple, data analysis is proving to be the major stumbling block. Although numerous software tools are available that aid in the prioritization of candidate disease-causing variants, all of the functionalities are disseminated in various analytical tools and a researcher is forced to pool all of the algorithms together – which is both time-consuming and demands a considerable understanding of each of the bioinformatics tools used. This has prompted the development of an in-house bioinformatics pipeline using Microsoft Visual Studio and C++ called TAPER™ (Tool for Automated selection and Prioritization for Efficient Retrieval of sequence variants) to aid the process of novel gene discovery.For the present study, we sequenced the exome of a patient with an undiagnosed primary immunodeficiency. The data was processed using TAPER™ and a novel homozygous variant, E133K (c.G397A) in WAS was identified. The patient was subsequently diagnosed with Wiskott-Aldrich Syndrome even though his platelet count was normal. Here we demonstrate the usefulness of TAPER™ in a clinical setting.

ABSTRACT NUMBER / ABSTRAKNOMMER: 32

CASE STUDY OF CHALLENGES OF LINKAGE TO HIV CARE FOR CHILDREN, THE STRATEGIES IDENTIFIED BY THE CHIP TEAM, AND THE OUTCOMES IN HPTN 071 (POPART) INTERVENTION, SOUTH AFRICA.

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Background: Prevention of Mother-to-Child Transmission (PMTCT) is a component of the PopART combination prevention package. Community HIV Care Providers (CHiPs) refer all pregnant women they find who are HIV positive (either through testing or because client self-reports her status) for antenatal care and PMTCT services. CHiPs also offer HIV tests to children and promote testing of

children of HIV-infected mothers. Children who are lost to follow up from HIV care and newly diagnosed HIV positive children, are referred to the local clinic for HIV care. One of the challenges within the community is that HIV infected children (HIC) are treated at the sub-district hospital. Despite the PMTCT programmes in place in the Western Cape and the efforts of CHiPs, many HIV exposed children (HEC) and HIC in our study communities are not in HIV care. CASE STUDY: A 28 year old, known HIV positive client, diagnosed in 2011, was not in HIV care. In November 2015 her 4 year old female child was tested by the CHiPs on request of the father and found to be HIV positive. Mother was not home when the child was tested. Challenges, strategies and outcomes are discussed. Conclusion: Community HIV care Providers (CHiPs) play a key role in identifying HIV exposed children (HEC) and HIV infected children (HIC) in the community who are not in HIV care, as well as their mothers who are not in HIV care. Despite the numerous barriers CHiPs themselves experience in trying to provide support, they are effective at working with mothers to identify and overcome the challenges that a mother faces in obtaining care for themselves and their children. Through provision of continuous counselling at a household level, CHiPs were able to assist HEC, HIC, and their mothers to link to HIV care and initiate ARVs.

ABSTRACT NUMBER / ABSTRAKNOMMER: 33

DEVELOPMENT OF A GENE EXPRESSION ASSAY TO DETERMINE THE ANTIGEN-STIMULATED M. BOVIS IMMUNE RESPONSE IN SPOTTED HYENAS (CROCUTA CROCUTA).

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Bovine tuberculosis was first identified in buffalo from Kruger National Park in 1990, and since then a number of other wildlife species, including spotted hyenas (Crocutacrocuta) have been infected with Mycobacterium bovis infection. We aimed to develop a relative qPCR assay for detection of M. bovis infection in spotted hyenas. Whole blood from five M. bovis-sensitized hyenas was incubated in Nil and TB Antigen tubes of the QuantiFERON-TB Gold (QFT) system. The relative expression stability of ACTB, GAPDH, YWHAZ and TBP in these samples was determined and the mean fold change in the expression of IFNG, CXCL8, CXCL9, CXCL10 and CXCL11 in antigen stimulated blood was measured. YWHAZ and TBP showed greatest expression stability, and YWHAZ was selected as a reference for further analysis. CXCL9 and CXCL11 showed greatest upregulation in antigen stimulated blood and assay results for these genes were strongly correlated. The measurement of antigen induced CXCL9 and CXCL11 expression, relative to that of YWHAZ, in QFT-processed whole blood is a promising, novel diagnostic test for M. bovis infection in spotted hyenas.

ABSTRACT NUMBER / ABSTRAKNOMMER: 34

CHARACTERISING THE PERSISTING RESERVOIR IN HIV-1 SUBTYPE C PATIENTS ON LONG-TERM SUPPRESSIVE ANTIRETROVIRAL THERAPY.

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Background: During HIV infection latent cellular reservoirs are established in which HIV persists in a transcriptionally dormant state for the life span of the infected cell. These reservoirs are the major barrier to eradication of infection in optimally treated patients. Early initiation of combination antiretroviral therapy (cART) in perinatally infected children leads to limited reservoir size and diversity. Children with very limited diversity in their persisting viral reservoirs may be ideal candidates for future curative interventions which involve vaccination against autologous HIV strains. This study aims to characterize the size, genetic diversity and mechanisms that drive persistence of the reservoir in the CHER cohort of early-treated, long-term suppressed subtype C children. Methods: An Ultra-sensitive HIV-1 cell associated DNA (CAD) real time PCR was performed on PBMC from 15 patients who had been on early, uninterrupted cART for up to age 7-8 years. Based on CAD values, single genome sequencing targeting the gag-pol region of HIV-1 was performed by diluting genomic DNA to a concentration at which <30% of all reactions were positive and likely a seeded by a single HIV-1 DNA molecule. Sequences were aligned to a subtype C reference and used to construct a neighbor-joining phylogenetic tree (MEGA 6.06). Intra-patient CAD diversity was calculated as the average pairwise distance (APD) between sequences. Results: CAD values for all 15 patients ranged from 181 copies per million PBMC to 0 copies. Intra-patient phylogenetic trees showed monotypic clusters in all but one patient. APD varied from 0.1 to 0.6 among the 12 patients with CAD-SGS sequences. Discussion: The detection of monotypic viral populations in these early treated, long-term suppressed patients is likely due to clonal proliferation of latently infected cells. To investigate this, six patients have been identified for integration site analysis to identify whether monotypic populations harbor the same integration sites.

ABSTRACT NUMBER / ABSTRAKNOMMER: 35

SLOW GROWING FORMS OF MYCOBACTERIUM TUBERCULOSIS CONTRIBUTE TO SHORTENING THE TIME TO POSITIVITY OF LIQUID CULTURE.

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Introduction: It is believed that the duration of anti-tuberculosis treatment must be at least 6 months to sufficiently eradicate slow growing and persisting forms of Mycobacterium tuberculosis. It is known that liquid culture is more sensitive for such slow growing mycobacteria than solid culture. Microscopy of Auramine and Nile Red stained sputum smears identifies three subpopulations of M tuberculosis (green, cream, red) but the clinical relevance of these populations is not clear. We hypothesized that green, cream and red bacteria represent fast growing, slow growing and persisting bacteria, respectively. Material and methods: Forty-two pulmonary tuberculosis patients randomized to receive one of three anti-tuberculosis treatments for 14 days (rifampicin, SQ109, rifampicin/SQ109) provided daily sputum samples for smears (Nile Red/Auramine-O staining, confocal microscopy) and culture (solid 7H11S agar and 7H9 liquid broth MGIT). A mixed effects statistical model of colony forming unit (CFU) counts, time to positivity (TTP), green and green + cream cell proportions of bacteria on smears was made. Results: SQ109 had no detectable treatment effect and was used for adjusting the treatment effects seen with the rifampicin-based treatments. F-statistics revealed that TTP (F=248) discriminated better between the colours than CFU (F=154). Discussion: Prolongation of TTP describes treatment effects on fast and slow growers better than the fall in CFU counts. Anti-tuberculosis treatments with good activity when measured with TTP are promising for shortening the duration of treatment.

ABSTRACT NUMBER / ABSTRAKNOMMER: 36

AUTOMATIC ALGORITHM-BASED REVIEW OF HIV SEROLOGY IMPROVES RESULT MANAGEMENT.

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Background: Automatic laboratory information system (LIS)-based reviewing of HIV serology results entails the automatic release of obtained results, obviating the need for manual review of results. The aim of this audit was to determine advantages and disadvantages of this practise by comparing result management before and after automatic review was instituted. Methods: LIS data from 2005 to 2015 were extracted and analysed using LinkPlus, Microsoft Excel and Statistica 12. A confirmed diagnosis of HIV infection requires three reactive tests; a screening and a confirmatory test on the first sample followed by one test on a subsequent sample. Automatic review was instituted in 2009, which entailed automated review of all non-reactive as well as reactive serology results falling with a user-specified result range. Results: The dataset comprised of 4995 pre-autoreview and 29995 post-autoreview results. Significant improvements were noted with time from sample registration to LIS result availability (168 minutes vs. 378-1629 minutes, $p<0.001$) and fewer redundant confirmatory tests during autoreview (40.4% vs. 48.6%, $p<0.001$). Autoreview did not result in increased rates of unnecessary testing following an appropriate second result (7.8% vs. 9.1%, $p=0.28$). The only disadvantage observed was a decreased rate of test requests following discordant serological results ($p=0.04$), but was limited to 83 results. Discussion: Autoreview improved time to LIS result availability and did not result in additional wastage of resources from repetitive testing. Fewer patients with discrepant serological results received a third sample post-autoreview, but the use of molecular testing to resolve discrepancies was not investigated. Autoreview was found to alleviate laboratory workload while improving the service to clinicians.

ABSTRACT NUMBER / ABSTRAKNOMMER: 37

OUTCOMES OF RESECTABLE PULMONARY ASPERGILLOMATA AT TYGERBERG HOSPITAL: A RETROSPECTIVE STUDY.

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BACKGROUND: Pulmonary aspergillomata develop in patients with underlying structural lung diseases. The mainstay therapy is surgery. METHODS: Retrospective analysis of patients with resectable pulmonary aspergillomata at the Tygerberg Hospital, between January 2013 and December 2015. RESULTS: Fifty nine patients were presented for surgery, with a mean (SD) age of 44.5 (± 8.8) years. Thirty six (61.0%) were male, 13 (22.0%) were infected with HIV and 83.1% had a previous history of pulmonary tuberculosis. One or both upper lobes were involved in 58 of 59 patients (98.3%) and six patients (10.2%) had involvement of more than one lobe. Haemoptysis was the most frequent indication for surgery occurring in 56 patients (94.9%). Eleven patients (18.6%) reported ongoing respiratory symptoms within 90 days following multi-disciplinary discussion. After discussion, nine patients were considered unfit for surgery and only 23 (46%) of those accepted underwent surgical resection, as of 1 June 2016. The median time to surgery was 190 days (IQR: 134 – 351). Eighteen patients (78.3%) underwent resection of a single lobe, two (8.7%) had double lobectomies and three (13.0%) had pneumonectomies. There was no post-operative mortality. One patient developed bleeding, persistent air leak and aspiration pneumonia post- operatively. Three further patients were hospitalised for >7 days. Following surgery, two

patient reported ongoing respiratory symptoms by day 90.Three of the accepted patients (6.0%) died prior to surgery from unknown causes. The reasons for delay to surgery were varied and included: miscommunication; lack of transport; hospital bed shortage refusal to consent; loss-to-follow-up; clinical improvement; clinical worsening and lack of theatre space due to emergency procedures. CONCLUSION: Less than half of the patients accepted for surgery at the Tygerberg Hospital received surgery, waiting times were long (>1yr in 25%) and were associated with mortality. Barriers to prompt surgery are complex, but should be urgently addressed.

ABSTRACT NUMBER / ABSTRAKNOMMER: 38

VIRAL INFECTIONS AND IMMUNE BIOMARKERS OF INFECTION AND INFLAMMATION IN CASES OF SUDDEN UNEXPECTED DEATH IN INFANTS (SUDI) AT THE TYGERBERG MEDICO-LEGAL MORTUARY.

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INTRODUCTION: Viral respiratory infections two weeks prior to the sudden and unexpected death of an infant have been reported in 40-80% of cases accompanied by inflammatory changes in respiratory organs like lung tissue. Viral particles have been detected during investigations, suggesting their possible involvement in infant death but the exact role they play in the events leading to infant death is not well understood. Immune reactions elicited by viruses and the ultimate release of cytokines and chemokines to combat the virus have been proposed as a possible trigger for events that lead the eventual death of the infant. It was therefore worthwhile to determine the immunological profile of infants in which viruses were detected my multiplex PCR and relating this to the severity of inflammation in lung tissue. METHODS: Routine H&E staining was done on lung tissue and the severity of tissue inflammation determined by forensic pathologists. Viral nucleic acid was detected in lung and tracheal swabs from SUDI cases using multiplex PCR. From the same cases, blood was collected from the heart and the levels of 15 cytokines and chemokines in the serum were determined using a customized, magnetic Luminex screening assay. Serum C-reactive protein levels were also measured using a high sensitivity enzyme linked immunosorbent assay. RESULTS: Viral screening has been positive in 56 of 109 cases (51.4%) with human rhinovirus (42.2%), parainfluenza 3 (11%), human enterovirus (8.3%) and human adenovirus (8.3%) being the most prevalent. Although the levels of virus specific cytokines like interferon gamma were very low, the cytokine profiles in some of the cases indicate a prior inflammatory event, with IL-1Ra, an antagonist for the pro-inflammatory cytokine IL-1 being present in abundance. CONCLUSION: Immune reactions to viruses as a possible trigger of sudden infant death need to be further investigated with suitable controls.

ABSTRACT NUMBER / ABSTRAKNOMMER: 39

HIV-1 RESISTANCE ANALYSES OF THE CAPE WINELANDS DISTRICTS, SOUTH AFRICA.

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Background: South Africa remains the leading country highly affected by HIV/AIDS, with 6.8 million people living with the disease and at least 3.1 million people on ARV. With the scale-up of ARV programme in the country a pragmatic approach to ART programme in monitoring and evaluation was developed in the Western Cape Province of South Africa. In this study we investigated the change in genotypic drug resistance of the Reverse Transcriptase (PR) region from our viral load monitoring cohort. Methods: We analysed the HIV-1 associated drug resistance mutations in plasma

samples submitted to the Tygerberg Academic Hospital National Health Service Laboratory for HIV-1 Viral load monitoring. Our 205 cohort samples with a viral load above 2000 copies/ml were amplified by PCR and sequenced. Viral subtyping was done using online tools and drug resistance mutations were screened using the Stanford University HIV Drug Resistance Database for Interpretation and the International AIDS Society-USA Guidelines. Results: We detected resistance associated mutations against RT inhibitors in 63.5% of samples analysed. This includes 34 NRTI mutations (33.9%) and 71 NNRTI mutations (61.7%).In addition 93.1% of the virus is subtype C With 6.9 % of other non-C subtypes detected A(1.7%) and B(5.2%) respectively. Discussion: As the ARV programme is scaling up in the country, it is essential to monitor and evaluate the resistance patterns of HIV-1.Our results shows that majority of the HIV/AIDS population around the Western Cape are acquiring drug resistance mutation. Our current results reflect that most patients are on first-line ARV therapy given the highest number of RT mutations detected in this study.

ABSTRACT NUMBER / ABSTRAKNOMMER: 40

LESSONS LEARNED WITH THE USE OF A HANDHELD ELECTRONIC DATA CAPTURE (EDC) DEVICE TO COLLECT DATA DURING THE HPTN 071 (POPART) INTERVENTION IN SOUTH AFRICA.

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SARAH FIDLER	(Imperial College London, London - Department of Infectious Disease Epidemiology)
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Background**:** HPTN 071 (PopART) (Population Effects of Antiretroviral Therapy to Reduce HIV Transmission) is a community-randomized trial of the impact of a combination prevention package on population-level HIV incidence in Zambia and South Africa. In PopART, CHiPs deliver the combination prevention package door-to-door. As part of "enumeration" (recording basic information about all members of a household after obtaining consent), member names, gender, age, addresses, and contact numbers of clients are captured by the CHiPs onto the electronic data capture (EDC) device. Methods**:** CHiPs have now been delivering the PopART intervention in the field for more than two years. During that time the intervention team, which includes the CHiPs, the CHiPs' field supervisors, and intervention management personnel, have encountered many challenges to the successful use of EDC devices. To overcome these challenges, the intervention team has had to work together to identify and communicate problems, to come up with solutions, and to work with other study team resources, particularly the department's Data Technicians, to implement solutions. Results (Challenges, Strategies, Outcomes)**:** Benefits of using EDC•Instant access to data collected from household visits•EDC facilitates daily, weekly, or monthly monitoring of CHiPs performance based on key indicators, in close to real-time•Automatically triggered follow ups for clients who need to be

linked to HIV care•EDC significantly reduces the need for paper documentation, thereby minimizing loss of data collected •Synchronisation ability enables immediate backup of data collected, in close to real time**.** Conclusion**:** Collecting data with EDC devices has major benefits. However, when deploying EDC devices challenges arise. To mitigate these challenges, one should consider aptitude when hiring end-users and have systems in place for efficiently resolving technical challenges.

ABSTRACT NUMBER / ABSTRAKNOMMER: 41

INVESTIGATING THE FUNCTION OF A-TYPE CARRIER PROTEINS IN MYCOBACTERIA.

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Tuberculosis (TB), caused by Mycobacterium tuberculosis (Mtb) infection, is the leading cause of death attributable to a bacterial pathogen. The current rise in drug-resistance and co-infection cases puts a strain on TB control programs, highlighting the need for development of new, more effective anti-TB drugs. Numerous uncharacterized genes have been identified in Mtb, and understanding the role of these genes in physiology is an important step in developing more effective strategies for combatting this pathogen. Iron-sulphur (Fe – S) cluster are adaptable inorganic co-factors that contribute to a diversity of biological processes within an organism. A-type carrier proteins are thought to be involved in Fe – S assembly in bacteria, although their role remains controversial. Rv2204c in Mtb and its homologue, MSMEG_4272 in Mycobacterium smegmatis, encode proteins that share homology with A-type carrier proteins. In this study we aim to investigate the role of these proteins in mycobacteria. The effect of over-expressing MSMEG_4272 in M. smegmatis was investigated with respect to its growth and drug susceptibility. Over-expression of MSMEG_4272 in M. smegmatis did alter the strain's growth-rate or its susceptibility to the anti-TB drugs isoniazid and clofazimine. Furthermore, growth of the over-expression strain in the presence of the intracellular iron chelator, 2,2'-bipyridyl, was comparable to that of the wild-type strain. Expression and purification of recombinant Rv2204c and MSMEG_4272 is currently being optimized in order to investigate their biochemical properties in vitro. Preliminary results revealed that expression of Rv2204c in the Rosetta-II expression strain resulted in a significant amount of the protein in the soluble fraction.

ABSTRACT NUMBER / ABSTRAKNOMMER: 42

HOW DO AUTHORS OF DIAGNOSTIC TEST ACCURACY (DTA) REVIEWS DISSEMINATE THEIR FINDINGS AFTER PUBLICATION?

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Background: Published literature shows that health-care workers and decision makers find it difficult to read and understand findings of DTA reviews. Review authors should therefore think about their target audience and about strategies to reach the audience. Objectives: To identify strategies used by authors to communicate and disseminate the findings of DTA reviews after publication. Methods: We searched MEDLINE for recent English language DTA reviews published within the last five years that evaluated the accuracy of tests on any infectious disease. We designed an online questionnaire using the software SurveyMonkey and emailed the final questionnaire to the corresponding authors of the

included DTA reviews including 2 email reminders to non-respondents. We descriptively analysed the survey responses with the analyse function of software SurveyMonkey. Results: Of the 186 DTA review authors we contacted, 34 responded to this survey (18.3% response rate). Of these, 22 were willing to be contacted for a follow-up interview. Majority of the respondents disseminated their research findings after publication (n=22, 65%). Of those who did not disseminate (n=12, 35%), many felt that publication of their review was sufficient (54%). Respondents that disseminated their findings (n=22, mostly targeted clinicians (95%), fellow researchers (77%) and policy makers (59%). However, a large proportion did not tailor their review summaries to the target audience (n=13, 59%) and were unsure if the audience actually understood their review findings (n=15, 75%). Notably many did not have a dissemination plan before disseminating their findings (n=13, 62%). Most respondents disseminated their findings in the form of review summaries (72%) or oral presentations (61%). Popular platforms used included conference presentations (67%), institution websites (61%) and emails (50%).Few respondents utilised social media (28%), Wikipedia (11%) or blogs (11%). Conclusions: A description of target audience and a dissemination plan should become part of review or funding proposals.

ABSTRACT NUMBER / ABSTRAKNOMMER: 43

B-LACTAM RESISTANCE MECHANISMS IN ENTEROBACTER SPP. ISOLATES FROM TYGERBERG HOSPITAL.

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Introduction: Emergence and spread of Carbapenem Resistant Enterobacteriaceae (CRE) at Tygerberg Hospital is of great concern due to limited treatment options. Carbapenem resistance is often mediated by the production of carbapenemases; however in some species reduced outer membrane permeability and active efflux pumps, in combination with other beta lactamases (extended spectrum beta lactamases (ESBLs) or AmpC enzymes) may play a role. Aim: This study investigates the resistance mechanisms associated with carbapenem resistance in clinical Enterobacter spp. isolates from Tygerberg Hospital. Methodology: A total of 25 ertapenem non-susceptible Enterobacter spp. isolates as identified by the Vitek2 automated system were included in this study. The ertapenem MICs of these isolates were determined by gradient diffusion. Multiplex PCR was used to detect TEM, SHV and CTX-M related ESBL genes. A colorimetric test was performed on 20 isolates using RapidecCarba NP Kit (bioMerieux) to screen for carbapenemases production. Results: Only 7 isolates were confirmed by gradient diffusion as non-susceptible. Potential ESBL genes were detected in 19 isolates; TEM-related genes in 4 (21%); SHV-related genes in 1 (5.3%), and CTX-M related genes in 1 (5.3%). 13 (68.42%) isolates had more than one ESBL gene present. Only one isolate was identified as a carbapenemase producer using the colorimetric assay. Discussion: The results suggest overcalling of ertapenem resistance in these isolates using the Vitek automated system; however broth microdilution MICs are being performed to serve as a reference standard. TEM-1, 2 and SHV-1 genes are not able to hydrolyse extended spectrum cephalosporins, and further work is needed to identify TEM-1, TEM-2, and SHV-1 in our isolates. Carbapenemase production in only one isolate (although 5 still remain to be tested) suggests other mechanisms mediating carbapenem resistance in Enterobacter spp. Further studies, including outer membrane protein analysis and detection of chromosomal beta lactamases, remain to be conducted.

ABSTRACT NUMBER / ABSTRAKNOMMER: 44

OPTIMIZATION OF FLOW CYTOMETRIC METHODS FOR MYCOBACTERIAL VIABILITY DISCRIMINATION AND CELL ENUMERATION.

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Introduction: Flow cytometry offers a great tool to analyse physiological and biochemical characteristics of bacteria at a single cell level. Particularly for studying Mycobacterium tuberculosis, since it's thought that persistent bacteria exhibit heterogeneity. This could include a subpopulation of viable but non-culturable (VBNC) bacteria, which may evade environmental stresses, while regaining virulence upon resuscitation. This is problematic due to the rise of infection persisting in an asymptomatic latent state. A challenge in studying VBNC cells is the difficulty in detecting them by conventional culture-based methods. The slow growth of mycobacteria hampers both basic and clinical research, and a rapid method for enumeration of mycobacteria is highly desirable. We aim to rapidly identify and enumerate the various physiological states of mycobacteria within a heterogeneous population using the LIVE/DEAD BacLight Bacterial Viability and counting kit. Methods: We applied the LIVE/DEAD Bacterial Viability kit to detect and enumerate viable and non-viable Mycobacterium smegmatis exploiting flow cytometry. Two nucleic acid stains were used; SYTO9 permeates live and dead cells, while propidium iodide (PI) penetrates cells with compromised cell walls. Bacteria were killed using different techniques to test the accuracy of the kit. Reference beads were added for bacterial enumeration and correlated with colony forming unit plating. This kit will further be explored on bacteria exposed to various anti-tuberculosis antibiotics and will be tested on artificial sputum, spiked with known amounts of live and dead bacteria. Results: A clear distinction between live and heat-killed cells was observed due to optimization of the LIVE/DEAD Bacterial Viability kit for M. smegmatis. Flow cytometry results accurately illustrated varying ratios of known amounts of live and dead cells. Conclusion: These results suggest the feasibility of a real-time tool to analyze mycobacterial physiology to specifically distinguish and enumerate live, dead and VBNC cells within a heterogeneous mycobacterial population, exploiting flow cytometry.

ABSTRACT NUMBER / ABSTRAKNOMMER: 45

THE EPIDEMIOLOGY OF ESBL-PRODUCTION IN ENTEROBACTERIACEAE WITH CHROMOSOMAL B-LACTAMASES.

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Extended spectrum β-lactamases (ESBLs) and AmpC β-lactamases are resistance mechanisms commonly found amongst Enterobacteriaceae. These genes confer resistance to various b-lactam antibiotics and negatively impact patient treatment and outcome. Phenotypic testing cannot always reliably distinguish between ESBL and AmpC production. This study describes the phenotypic and molecular characterisation of selected cephalosporin resistant Enterobacteriaceae at Tygerberg hospital, and evaluates the ability of an automated susceptibility testing platform to identify the underlying resistance mechanisms. Fifty Enterobacteriaceae isolates harbouringAmpC were selected based on their resistance to 3rd generation cephalosporins using the Vitek2® AES. Antimicrobial susceptibility testing was repeated using disc diffusion and E-tests for cefotaxime, ceftazidime and cefepime, along with double disc diffusion for detection of ESBLs. Isolates were screened for the presence of the ESBL genes, TEM, SHV, and CTX-M, using multiplex PCR. When comparing results from Vitek2® AES to E-tests for cefotaxime, 8 minor errors, 21 major errors (ME) and 1 very major error (VME) were seen. For cefepime the results showed 12 minor, 1 ME and 13 VMEs. Cefotaxime and ceftazidime MICs were generally higher when tested with Vitek2® than gradient diffusion; while the opposite was true for cefepime. The Vitek2® identified 33 (66%) isolates as ESBL producers, while double disc diffusion identified only 15 (30%) ESBL producers. For 14 isolates, the Vitek2® was unable differentiate between ESBL and AmpC production. At least 1 ESBL gene was observed in 27 (54%) of the isolates, with 21 of these containing 2 genes and 3 containing all 3 genes. The CTX-M

gene was most common in this group of isolates. Discrepancies between susceptibility results is alarming. Of particular concern is the possible undercalling of cefepime resistance by Vitek2®. There is a poor correlation between the Vitek2® and molecular presence of ESBLs. This may have further implications for treatment and infection control.

ABSTRACT NUMBER / ABSTRAKNOMMER: 46

MOUSE MACROPHAGES DISPLAY DIFFERENTIALLY EXPRESSED GENES FOR INFECTION WITH PATHOGENIC VERSUS NON-PATHOGENIC MYCOBACTERIA.

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IAN WIID	(Stellenbosch University - Division of Molecular Biology and Human Genetics)
GINA LEISCHING	(Stellenbosch University - Division of Molecular Biology and Human Genetics)
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BIENYAMEEN BAKER	(Stellenbosch University - Division of Molecular Biology and Human Genetics)

One of the underpinnings of tuberculosis is that the disease causing agent, Mycobacterium tuberculosis, is able to survive inside human macrophages and other host cells. Intracellular survival is not observed for non-pathogenic mycobacteria inside healthy host cells. Studying the host response towards infection with mycobacteria of different pathogenicities might reveal important determinants (molecules) that are involved in Mycobacterium's intracellular survival strategy. In a transcriptomic study, through RNA-Seq technology, the response of mouse (C57BL/6) macrophages was compared between infection with pathogenic (Mycobacterium tuberculosis H37Rv and clinical isolate R179) and non-pathogenic mycobacteria (Mycobacterium smegmatis and bovis BCG). Results showed that about 50 RNA transcripts are differentially expressed in the comparison between infection with pathogenic and non-pathogenic mycobacteria. Here we report on the validation of the differentially expressed RNA molecules as performed through quantitative polymerase chain reaction (qPCR). These RNA transcripts are indicated to play roles in various macrophage pathways.

ABSTRACT NUMBER / ABSTRAKNOMMER: 47

INVESTIGATING THE INDUCTION OF AUTOPHAGY BY DIFFERENT MYCOBACTERIUM TUBERCULOSIS STRAINS: DO STRAIN SPECIFIC DIFFERENCES EXIST?

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The pathogenicity of Mycobacterium tuberculosis (M.tb) is determined by its ability to survive within host macrophages. The mammalian autophagy pathway is now recognised as a major factor determining disease pathogenesis. Autophagy, a destructive catabolic process, plays a significant role in the destruction of intracellular pathogens. Clearer understanding of the natural range of autophagic responses elicited by different mycobacteria is required. Autophagy induction has been shown to differ in magnitude depending on the mycobacterial species. However, no study has investigated the specific autophagic capacities of different M.tb strains. Currently we aim to investigate the host autophagic response to different M.tb strains (and clades within strains) responsible for the tuberculosis epidemic in South Africa. THP-1 cells were infected with six different M.tb clinical isolates, representing six different lineages and the lab strain H37Rv. After RNA extraction, gene expression analysis of 84 autophagy-related genes was performed using the RT2 Profiler^{TM} autophagy array. This showed TNFα and TGM2 were highly up-regulated in cells infected with LAM 1, Typical Beijing, H37Rv and CAS/Kili strains compared to the uninfected controls. While cells infected with LCC and Haarlem 3 strains IFNG, CDKN2A and ULK2 were up-regulated. The genes TNFα, TGM2, IFNG

and CDKN2A are co-regulators of autophagy; while IFNG and CDKN2A further co-regulates apoptosis and the cell cycle. IFNG and ULK2 can induce autophagy by intracellular pathogens and IRGM is involved in autophagic vacuole formation. Cells infected with LAM 1 and Atypical Beijing showed similar down-regulation of genes, namely CDKN1B, FADD, APP and GAA; the same was seen in cells infected with LCC and Haarlem 3 strains. The significance of this study will aid in our understanding of how M.tb manages to overcome the host immune system, with interest in which genes each specific strain investigated in our study uses to its advantage.

ABSTRACT NUMBER / ABSTRAKNOMMER: 48

APPLYING SEROLOGY AS A METHOD TO DETECT MYCOBACTERIUM BOVIS IN COMMON WARTHOGS (PHACOCHOERUS AFRICANUS).

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Mycobacterium bovis infection in animals is the cause of bovine tuberculosis (bTB). The disease has been reported in a vast number of species globally including domestic pigs, wild boar, bushpigs and warthogs. Wild boar and domestic pigs play an important role in maintaining bTB in the Eurasian ecosystem. Since warthogs share similar ecological niches with wild boar and feral pigs, they might be capable of serving as reservoir hosts under specific conditions. Warthogs regularly move across man-made barriers, which may increase the risk of disease transmission within and between the species including livestock and humans. Therefore, diagnostic tools that accurately detect M. bovis are needed to determine the infection status of warthogs. Our previous work has shown that serological assays can distinguish between M. bovis-infected and uninfected warthogs. In the current study, the test performance of an indirect PPD ELISA, TB ELISA-VK® (Vacunek, Spain) and DPP® VetTB Assay (Chembio) were compared in naturally infected and uninfected warthogs. These assays were able to detect 60/159 (38%) animals as M. bovis-infected, using the indirect PPD ELISA (sensitivity (Se): 87%; specificity (Sp): 92%), 32/56 (57%) for the TB ELISA-VK® (Se: 86%; Sp: 78%) and 26/91 (29%) for the DPP® VetTB Assay (Se: 86%; Sp: 93%). All three assays were able to distinguish M. bovis-infected warthogs from both uninfected individuals and those with Non-Tuberculous mycobacteria (NTM) present ($p<0.05$). Furthermore we observed no significant difference between uninfected individuals and those with NTM. These findings demonstrate that serological assays are a useful tool for assessing bTB in warthogs.

ABSTRACT NUMBER / ABSTRAKNOMMER: 49

IDENTIFICATION OF NOVEL CANDIDATE GENES FOR SUSCEPTIBILITY TO TUBERCULOSIS BY IDENTIFYING DISEASE-CAUSING MUTATIONS IN INDIVIDUALS WITH PRIMARY IMMUNODEFICIENCY DISORDERS.

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Despite the fact that approximately 33% of the world's population is infected with M.tuberculosis, the causative agent of tuberculosis (TB), only 10% of infected individuals will develop active disease. While the genotype of invading strain and environmental factors are crucial in disease outcome, host genetic factors are just as important. Several investigations have successfully identified genes involved in TB susceptibility. Nevertheless, it is certain that more susceptibility genes exist, but identifying them in a complex disease such as TB is challenging. We believe that the answers may lie in the genomes of individuals suffering from a group of inherited primary immunodeficiency disorders (PIDs) for which multiple M.tuberculosis infections is a common feature. We hypothesize that the genes involved in these PIDs could be candidate genes for increased TB susceptibility in the general population. We aimed to identify novel TB susceptibility genes by finding gene mutations in patients suffering from PIDs characterized by increased TB susceptibility. The exomes of three PID patients as well as their healthy parents, where possible, were sequenced using the IlluminaHiSeq. Bioinformatics techniques were used to identify a large amount of variations from the reference human genome for each patient. We prioritized the genes based on OMIM and HGMD database entries which resulted in the identification of three novel putative disease-causing variants, one per patient, situated in two novel susceptibility genes namely TAP1 and MAP3K14. Functional studies are currently being done to investigate their involvement in disease, after which case-control association studies will be conducted in a cohort of TB patients and healthy controls. This study is on-going and several analyses still need to be done. We believe that the identification of these disease-causing mutations would provide us with novel candidate genes to screen for TB susceptibility in the general population.

ABSTRACT NUMBER / ABSTRAKNOMMER: 50

INVESTIGATION OF X-CHROMOSOME VARIANTS IN SUSCEPTIBILITY TO PULMONARY TUBERCULOSIS IN TWO AFRICAN POPULATIONS USING GENOTYPING ARRAY TECHNOLOGIES.

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Background: Globally there is on average a one and a half fold increase in the number of tuberculosis (TB) incidences reported in males compared to females. This bias cannot be fully explained by socioeconomic and behavioral factors or the influence of sex hormones. As host genetics contributes towards developing TB we hypothesized that variants on the X chromosome as well as the mechanism of X chromosome inactivation (XCI) could influence TB susceptibility and explain this sex bias. Methods: Individuals from the SAC population were genotyped on the Illumina Multi-Ethnic Genome Array (MEGA) and consisted of 400 TB cases and 400 healthy controls, while 834 TB cases and 1018 controls from the Gambian population were genotyped on the Affimetrix 500k array (Welcome Trust dataset). Association testing was done using logistic regression to adjust for age and ethnicity in a sex stratified and combined analysis. Gene-based association testing, XCI incorporated association testing and a meta-analysis including both datasets was also conducted. Results: rs5935414, located in the mitochondrial ribosomal protein L35 pseudogene 4 (MRPL35P4), was associated with TB susceptibility in males and the combined analysis, but not females in the 500k dataset. For the MEGA data there were no significant results, but a meta-analysis of both datasets again showed an association with rs5935414. No association was identified with the gene based test in either dataset. XCI incorporated analysis did not significantly change any association statistics. Conclusion: The impact of a SNP in a pseudogene, with no regulatory features, might be negligible with regards to TB susceptibility. Our findings suggest that sex-specific differences exist and that X chromosome SNPs could contribute towards the male bias. Further analysis with larger datasets and more power will have to be conducted to determine the full extent of the X chromosomes involvement in TB susceptibility and its sex-bias.

ABSTRACT NUMBER / ABSTRAKNOMMER: 51

WORKING TOWARDS INCREASING THE NUMBER OF HIV-INFECTED PEOPLE WHO KNOW THEIR STATUS IN CAPE TOWN SOUTH AFRICA. LEARNING FROM TWO INNOVATIVE COMMUNITY-BASED HIV COUNSELLING AND TESTING STRATEGIES.

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Background: South Africa has adopted the UNAIDS goal, which includes 90% of all people living with HIV will know their status by 2020, making HIV testing services essential. Health services cannot test everyone. Community-based HIV counselling and testing (CBHCT) strategies can reach populations who do not typically access health services. This study analysed the routine data collected from two innovative CBHCT strategies, strategically implemented around Cape Town, to increase the number of HIV positive individuals who know their status. Methods: In 2015, the Desmond Tutu TB Centre at Stellenbosch University implemented: (1) mobile HCT services using tents and a van at a major city transport hub, targeting commuters for "walk-in" services, (2) systematic door-to-door mobilization for mobile HCT services in the community, targeting people living in a high HIV/TB burden area. Data was collected between 23 June and 23 September 2015. All HIV rapid testing was done according to the provincial algorithms. Data was collected in HCT registers and entered into a database for analysis. Results: Of the 3921 clients who attended HCT, 3859 received an HIV test, of which 48% were men. Overall HIV positivity was 7%. Females had a higher positivity (8%) compared to males (5%) across both strategies. The majority of HIV-infected clients (93%) accepted a referral letter to HIV care, irrespective of sex. Linkage to care (LTC) was self-reported by clients that they had attended HIV care at a health facility. LTC was higher for door-to-door mobilization compared to the transport hub for both males and females. Conclusion: HIV positivity was higher in both CBHCT strategies compared to the HIV prevalence for the Western Cape Province overall. Innovative and strategically directed CBHCT strategies can increase the number of HIV infected individuals who know their status and can access males, who do not typically access health facilities.

ABSTRACT NUMBER / ABSTRAKNOMMER: 52

SCREENING OF COMMERCIALLY AVAILABLE ANTIBODIES FOR USE IN FLOW CYTOMETRIC ANALYSIS IN AFRICAN LIONS (PANTHERA LEO).

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The immune responses against tuberculosis in lions are still poorly defined. Mycobacterium infection in humans induces several T-cell subsets, with the predominant response mediated by classically restricted, peptide-specific Th1 type CD4+ T cells and CD8+ cytotoxic T lymphocytes, and shown to be essential for protective immunity in murine models of tuberculosis. In humans, HIV and active tuberculosis both impact M. tuberculosis-specific T-cell immunity, which leads to the phenomenon of skin test anergy and impaired cellular immunity. A similar phenomena may exist in lions which live in M. bovis endemic areas, such as the Kruger National Park, making it necessary to delineate the potential roles of distinct T-cell subsets as biomarkers of active tuberculosis and latent tuberculosis infection. In this pilot study, peripheral blood mononuclear cells were stained using commercially available multi-species cross reactive antibodies and examined using flow cytometry. Antibodies against T-cells (CD5, CD3, CD4, and CD8), B-cells (CD19 and IgM), markers of immune activation (CD25), immune memory (CD45) and phagocytic cells (CD11b and CD14) were tested following manufacturers guidelines and the guidelines published by Alvarez and Roederer. Preliminary data analysis suggests that commercially available antibodies (if titrated correctly) can be used to differentiate between lion T-lymphocyte subsets memory and activation states and other immune effector cells.

ABSTRACT NUMBER / ABSTRAKNOMMER: 53

POPULATION STRUCTURE AND BIOFILM FORMATION OF PSEUDOMONAS AERUGINOSA ISOLATES FROM PATIENTS WITH SEVERE BURN WOUNDS AT TYGERBERG HOSPITAL.

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Pseudomonas aeruginosa is a gram negative bacillus commonly found in the environment, but also a significant cause of infection. Most clinical cases of P. aeruginosa infection are associated with compromised host defences. P. aeruginosa infection is also a serious complication following severe burn wounds, often leading to septicaemia and death. P. aeruginosa frequently forms biofilms, which negatively impacts treatment and eradication of infections. This study aimed to determine the population structure of P. aeruginosa isolated from burns patients at Tygerberg Hospital and to investigate their ability to form biofilms. Methods: P. aeruginosa isolates from blood cultures, swabs and tissue samples from adult and paediatric patients at Tygerberg Hospital were collected from February 2015 to March 2016. 13 locus VNTR typing was performed on a selection of isolates. Biofilm formation was assessed after a 12h incubation period followed by crystal violet staining and absorbance value measurements. Results: Forty isolates from the burns unit, and 40 isolates from other wards were included. Forty three different strain types were identified amongst the 80 isolates, however 60% of the isolates from the burns ward were identical on VNTR analysis. These VNTR types were not identified outside the burns unit. Biofilm formation varied substantially between isolates, with no correlation between biofilm formation and VNTR type. Discussion: The predominance of a single VNTR type within the burns unit implies spread of the organism from patient to patient. Improved infection control efforts may reduce the burden of infection. Future work on these isolates will investigate the impact of antibiotics on biofilm formation. An enhanced understanding of the P. aeruginosa population structure in this patient group and the impact of biofilms on the establishment and antibiotic treatment may enable improvements in transmission prevention and clinical treatment and outcome.

ABSTRACT NUMBER / ABSTRAKNOMMER: 54

INVESTIGATING THE POSSIBLE IMMUNOACTIVE AND ANTI-MYCOBACTERIAL PROPERTIES OF VARIOUS SURFACTANTS.

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Background: The lungs present an immunological challenge for the host as they are most frequently targeted by pathogens. Alveolar macrophages are critical to pulmonary host defense and innate immunity. In addition to improving pulmonary mechanics, its components have also been seen to modulate innate pulmonary immunity. The use of exogenous pulmonary surfactants is proposed as a drug carrier for anti-tubercular drugs. Purpose: To evaluate the potential anti-inflammatory effects of exogenous surfactants on the lipopolysaccharide- (LPS) stimulated and un-stimulated rat alveolar macrophage (AM) cell line NR8383 as well as human BAL derived AM as well as the possible MIC lowering capacity of exogenous surfactants. Methods: Exogenous surfactants (Curosurf®, Liposurf® and Synsurf®) standardised to phospholipid content of 25-1,000 µg/ml were incubated with LPS- (1 µg/ml) stimulated and un-stimulated NR8383 AMs and human BAL derived AM over pre-determined time-periods. Macrophage oxidative burst was measured by flow cytometry. Linezolid, in combination with various surfactants at a 1:1 ratio at relevant MIC concentrations, was investigated for the H37Rv strain and the X51 drug resistant strain of M. tuberculosis using the MGIT 960 system. Results and

Conclusion: Exogenous surfactants inhibit secretion of pro-inflammatory cytokines and influence the production of ROS in NR8383 AMs. The inhibitory effect of Synsurf® on cytokine secretion is greater than that of Curosurf® and Liposurf® although it being dose-dependent. The anti-inflammatory activity of surfactant products used in the treatment of neonatal respiratory distress syndrome (RDS) may depend upon the specific preparation or dose used. Anti-tubercular drug-loaded surfactants could serve as a dual purpose of alveolar stabilisation and drug penetration as no negative interference on the MIC was displayed. However, a synergistic effect of increased activity of Linezolid when in combination with surfactant was seen.

ABSTRACT NUMBER / ABSTRAKNOMMER: 55

INVESTIGATING THE ROLE OF LTA4H IN PULMONARY TUBERCULOSIS AND TUBERCULOSIS MENINGITIS.

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Varying responses, ranging from no clinical symptoms to active tuberculosis (TB), are seen after exposure to Mycobacterium tuberculosis. Zebrafish embryos with leukotriene A4 hydrolase (lta4h) gene mutations were previously shown to be extremely susceptible to Mycobacterium marinum infection. A subsequent association study done in humans found that two LTA4H single nucleotide polymorphisms (SNPs) were associated with protection from pulmonary TB (PTB). Here we investigated the association between 5 LTA4H polymorphisms and PTB or tuberculosis meningitis (TBM) susceptibility in a South African population. A total of 161 TBM patients, 416 PTB patients and 407 healthy controls were included in the study. Genomic DNA was extracted from these samples and whole genome amplification was done using the Ready-to-goTMGenomiPhiTM V3 kit. The LTA4H SNPs rs1978331, rs17525495, rs2660845, rs2540475 and rs2660898 were genotyped using Taqman® Assays. All the SNPs were in Hardy Weinberg Equilibrium ($P > 0.05$) in the controls and no significant associations ($P < 0.05$) were detected between the SNPs and PTB or TBM. In addition, we detected no significant association when comparing PTB and TBM cases. These results suggest that polymorphisms in the LTA4H gene do not play a major role in susceptibility to PTB or TBM in this setting. This is the first study to report on LTA4H polymorphisms in a South African population.

ABSTRACT NUMBER / ABSTRAKNOMMER: 56

CHARACTERISATION OF SCCMEC TYPES IN METHICILLIN-RESISTANT STAPHYLOCOCCI AT A TERTIARY HOSPITAL IN CAPE TOWN, SOUTH AFRICA.

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Background: The global burden of methicillin resistant Staphylococcus aureus (MRSA) can be largely attributed to S. aureus' ability to acquire the resistance element, SCCmec. Classification of SCCmec types is based on the arrangement and classes of the mec and ccr gene complexes and ORFs in the joining (J) regions. At least eleven SCCmec types and numerous subtypes have been described to date. We identified potentially novel and novel variant SCCmec types in MRSA isolates from a tertiary hospital in Cape Town. This study aimed to describe the molecular structure and possible origin of these novel elements in our setting, and to determine the prevalence of these SCCmec types. Methods: We screened 87 clinical MRSA and 100 MR-CoNS isolates using a multiplex PCR for SCCmec typing (Milheirico et al., 2007). Additional typing employed a combination of six multiplex PCRs

(Kondo et al., 2007) on 3 MRSA isolates each from the novel and novel variant types. Whole genome sequencing was performed on representative isolates using the Illumina platform. Results: Among the MRSA isolates, 36% contained the novel SCCmec type (ccrC/Class A mec), followed by SCCmec IV (24%), the novel variant SCCmec type (ccrA1B1,ccrC/Class B mec) (17%) and SCCmec III (11%). Only one MR-CoNS isolate contained the novel type. The novel element contained both a resistance-associated transposon and –plasmid, encoding for cadmium and tetracycline resistance respectively. Preliminary genomic analysis supports the PCR findings, but further work is necessary to confirm the gene complex arrangements within these novel elements. Conclusion: The novel SCCmec type is common among local MRSA isolates, and may reflect clonal spread within the hospital. The finding of the same novel SCCmec within a MR-CoNS isolate suggests CoNS as a potential source of this novel element, however further phylogenetic analysis is required to provide insights into how these novel elements emerged.

ABSTRACT NUMBER / ABSTRAKNOMMER: 57

DNA EXTRACTED FROM USED XPERT MTB/RIF CARTRIDGES CAN BE USED FOR SECOND-LINE DRUG SUSCEPTIBILITY TESTING.

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Background: Xpert MTB/RIF is a widely used molecular test for tuberculosis (TB) and rifampicin resistance. Rapid diagnosis of drug resistance can facilitate the earlier initiation of effective treatment and reduce transmission, however, diagnostic algorithms incorporating Xpert require the collection of an additional specimen for drug susceptibility testing (DST), which adds delay and patient dropout. We examined whether mycobacterial genomic DNA recovered from used Xpert cartridges was useful for genotypic DST using commercially-available line probe assays (LPAs). Methods: We extracted ~15 µl from the diamond-shaped reaction chamber of used Xpert MTB-positive cartridges performed on either: (1) a triplicate dilution series (ranging from 0-106 CFU/ml) of bacilli with confirmed drug-susceptible-TB (DS-TB), multidrug-resistant-TB (MDR-TB) or extensively-drug-resistant (XDR-TB); (2) sputum. Aliquots of the extract were genotyped using the MTBDRplus VER. 2.0 and MTBDRsl VER. 2.0 LPAs (Hain Lifesciences), to detect first and second-line resistance. Results: For the dilution series (DS-TB, MDR-TB or XDR-TB), all MTBDRplus rifampicin and isoniazid results were indeterminate whereas for the MTBDRsl all samples ≥10E3 CFU/ml were detected by the LPAs. All DS-TB and MDR-TB dilutions were correctly classified as susceptible for both FQs and SLIDs, whereas for the XDR-TB dilution series, all were correctly classified as resistant for FQs and SLIDs. In a pilot evaluation on clinical specimens (n=57), MTBDRsl successfully detected susceptible/resistant DNA for both fluoroquinolones and second-line injectable drugs (n=55(96%) and n=52(91%), respectively) with low indeterminate rates (n=2(4%) and n=5(9%), respectively for each drug class).Conclusions: Performing MTBDRplus on DNA extracted from used Xpert cartridges results high indeterminate rates and is hence unlikely to be useful, possibly due to an overabundance of interfering rpoBamplicons. In contrast, second-line DST using MTBDRsl on the same material appears to be highly feasibility and have high diagnostic accuracy. These data have implications for the routine DST algorithms where Xpert is used.

ABSTRACT NUMBER / ABSTRAKNOMMER: 58

GENOMIC DIVERSITY OF MYCOBACTERIUM TUBERCULOSIS; A PILOT STUDY IN PATIENTS WITH TUBERCULOUS MENINGITIS.

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M. VAN DER KUIP	(VUmc - Pediatric Infectious Diseases and Immunology)
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Tuberculosis meningitis (TBM) is the most severe form of tuberculosis (TB), often resulting in permanent disability. At Tygerberg Hospital (TBH) and Red Cross Children's Hospitals, 14.9% of the children with culture confirmed TB are diagnosed with TBM. The current study includes 80 patients with severe stages of TBM, confirmed by the department of Pathological Anatomy, TBH, between 1977 and 2012. The aim of this study is to genotype the Mycobacterium tuberculosis (Mtb) in brain specimen, and to correlate the genotype to previously described stages of granuloma formation. The specimen were formalin-fixed and paraffin embedded (FFPE), a common way to preserve tissue. Formalin has several effects on DNA, complicating molecular tests. Different FFPE DNA extraction methods were compared, including NucleoSpin®, QIAamp® and in house phenol chloroform method. Genotyping was performed by spoligotyping and PCR based genotyping using gel electrophoresis. PCR targets varied from 141 to 388 bp, because the samples did not contain high molecular weight DNA due to formalin fixation. The commercial silica membrane extraction methods gave the purest DNA. PCR based genotyping using gel electrophoresis was successful in determining the causative Mtb strain in 8 out of 13 samples. Spoligotyping showed hybridization of almost all oligonucleotides on the membrane and inconsistency of patterns when different samples of the same FFPE specimen were used. The spoligotyping results could be due to non-specific binding or the presence of different strains of Mtb within one sample. A combination of a drug susceptible and a drug resistant strain are associated with poor clinical outcome, which would be likely in this cohort. The use of different slices of one specimen could possibly explain the pattern differences within one specimen. Since spoligotyping is not conclusive, the PCR based genotyping method is most promising to continue this study.

ABSTRACT NUMBER / ABSTRAKNOMMER: 59

GENEXPERT MTB/RIF ON STOOL IS USEFUL FOR THE RAPID DIAGNOSIS OF PULMONARY TUBERCULOSIS IN CHILDREN WITH SEVERE DISEASE.

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Background: Bacteriological confirmation of tuberculosis (TB) in young children can be challenging as the disease is paucibacillary and children require assisted production of sputum samples. Stool collection is easy and poses minimal infection risk to medical staff. We previously presented preliminary data on the detection of M.tuberculosis in stool using culture and Xpert MTB/RIF (Xpert). In a larger prospective paediatric cohort we investigated the utility of Xpert on stool and address the potential applications of this diagnostic strategy. Methods: Children <13 years of age with suspected intrathoracic TB were consecutively enrolled from Tygerberg and Karl Bremer hospitals, Cape Town, from April 2012-August 2015. Eligibility criteria were ≥1 of: prolonged cough, fever or poor growth, OR any cough duration with 1 of a) close contact with TB source case, b) reactive Mantoux, c) chest radiograph (CXR) suggestive of TB. Bacteriological investigations included multiple respiratory samples (gastric aspirate/sputum, induced sputum, nasopharyngeal aspirate) for smear microscopy, liquid culture and Xpert, and stool for Xpert. Severe disease was defined as complicated, extensive or miliary disease on CXR.Results Of 380 children [196 (52%) male, median age 16 months, 52 (14%) HIV-infected], 170 (45%) were treated for TB on clinical grounds. 72 (42% TB cases; 19% total) were confirmed by culture or Xpert from any sample. The sensitivity and specificity of stool Xpert vs. overall bacteriological confirmation were 32.9% and 99.7%, respectively. 23/48 (48%) children with bacteriologically confirmed, severe TB had Xpert-positive stool. Using two multivariable logistic regression analyses, Xpert-positive stool was associated with severe disease (aOR 22.10; 95% CI 2.88-169.54; p=0.003) controlling for age, and with cavities on CXR (aOR 7.05; 95% CI 2.16-22.98; p=0.001) controlling for age and expansile pneumonia. ConclusionsXpert on stool is convenient and useful as a rapid tool to confirm TB in children with radiologically severe TB.

ABSTRACT NUMBER / ABSTRAKNOMMER: 60

TUBERCULOSIS AND VISCERAL RIB LESIONS IN THE KIRSTEN SKELETAL COLLECTION.

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Infectious diseases such as Tuberculosis can be investigated after death by examination of skeletal material. Visceral rib lesions (VRL) can result from inflammation of the adjacent pleura caused by lung diseases and have specifically been association with pulmonary Tuberculosis. The aim of this study was to evaluate VRL in the Kirsten Skeletal Collection and relate it to the documented cause of death (COD). Ribs from skeletons (n=300, male/female ratio=2/1) were examined macroscopically using a magnifying lamp. Three population groups representative of the Western Cape were compared in this study: black (n=47), mixed race (n=209) and white (n=43). The rib number and region of each VRL was documented. Rib lesions occurred in 29.33% of skeletons with the black (31.91%) and mixed (33.97%) population groups having statistically significant higher prevalence than the white (4.65%) group. Of skeletons with Tuberculosis as a COD, 58.06% showed VRL, while 47.83% of skeletons with Pneumonia showed VRL. The most commonly affected ribs were the right ribs 4-8. The vertebral region was the most common site for VRL. Previous studies have found differences in prevalence of VRL with some suggesting a higher prevalence in tuberculosis than non-tuberculous pulmonary diseases. The present study, however, illustrated a similar prevalence for both Tuberculosis and Pneumonia. The distribution of VRL in the present study was similar as previous studies. To conclude, the extent to which VRL can be used as a diagnosis criterion for Tuberculosis in skeletons is still uncertain and more research is required to improve interpretation of VRL.

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Theme 3 / Tema 3

Violence, Injuries, Trauma and Rehabilitation/ Geweld, Beserings, Trauma en Rehabilitasie

Oral Presentations/ Referate

ABSTRACT NUMBER / ABSTRAKNOMMER: 1

DEVELOPING CLINICAL PRACTICE GUIDELINES FOR SOUTH AFRICAN EMERGENCY CARE: A METHODOLOGICAL OVERVIEW

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The African Federation for Emergency Medicine supported by various collaborating institutions have been awarded the bid by the Health Professions Council of South Africa's Professional board of Emergency Care to revise the current South African emergency care (paramedic) protocols. The aim of the project is to create the first emergency care evidence based clinical practice guidelines (CPGs) in South Africa. Current emergency care protocols are dated, being a decade old, lack a transparent methodology and evidence base and are in need of a major revision considering the fast pace of development in the field in recent years. The objectives of the CPGs are to be patient centred, realistic and enhance the continuation of care, aligned to current international best practice.The AFEM Emergency Care guideline panel presents the guideline development methodology employed for this project. Guideline development methodology is underpinned by systematic searching, appraising and synthesising best available evidence for a particular question. We discuss our methodological approach including searching for high quality CPGs, CPG quality appraisal followed by the unique approach of adapting, adopting or contextualising CPGs rather than the traditional primary level evidence synthesis approach for developing de novo CPGs. We also highlight our approach around certain issues encountered regarding handling different levels of evidence classifications and handling advisory board comments.

ABSTRACT NUMBER / ABSTRAKNOMMER: 2

CERVICAL SPINE FACET DISLOCATIONS; AN AUDIT OF TIME DELAYS BETWEEN INJURY AND REDUCTION

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Cervical spine facet dislocation may be the consequence high energy trauma and my result in severe spinal cord injury. Animal studies suggest that decompression of ongoing spinal cord compression within six hours, may prevent permenant neurological damage. Closed reduction of facet dislocations is considered a medical emergency and is commonly performed as a front room procedure. Aim: to demonstrate the time delays between injury and reduction of cervical facet dislocations at Tygerberg Hospital. Method: a retrospective review of medical records between 2008 and 2016. 91 patients identified with facet dislocation. 70 had complete records and were included for this review. A time line was established for each patient from time of injury until reduction attempted. Reduction succes rates were evaluated. Findings: Average age of 37years, prodominately male patients involved. The most common cervical spine level involved was C5/C6. Twenty nine patients had had established spinal cord injury at the time of first consult with orthopaedist. Median time delay from injury to arrival at hospital was three hours. The median delay from casualties to orthopaedics was 8.75 hours(std.dev 28.5 hours). Median delay in reduction once seen by orthopaedist was 10hours(std.dev 30.4hours). Reduction succesful in 69% of cases. Conclusion: much needs to be done to reduce the delay in reduction of cervical spine facet dislocations at Tygerberg Hospital.

ABSTRACT NUMBER / ABSTRAKNOMMER: 3

PARALYMPIC ATHLETES WITH CEREBRAL PALSY DISPLAY ALTERED PACING STRATEGIES IN DISTANCE-DECEIVED SHUTTLE RUNNING TRIALS

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Objective: This study investigated performance and physiology to understand pacing strategies in elite Paralympic athletes with cerebral palsy (CP).Methods: Six Paralympic athletes with CP and 13 able-bodied (AB) athletes performed two trials of eight sets of 10 shuttles (total 1600m). One trial was distance-deceived (DEC, 1000m + 600m) one trial was non-deceived (N-DEC, 1600m). Time (s), heart rate (HR, bpm), ratings of perceived exertion (RPE, units) and electromyography of five bilateral muscles (EMG) were recorded for each set of both trials.Results: The CP group ran slower than the AB group, and pacing differences were seen in the CP DEC trial, presenting as a flat pacing profile over the trial ($P < 0.05$). HR was higher and RPE was lower in the CP group in both trials ($P < 0.05$). EMG showed small differences between groups, sides and trials. Conclusion: The present study provides evidence for a possible pacing strategy underlying exercise performance and fatigue in CP. The results of this study show; 1) underperformance of the CP group, and 2) altered pacing strategy utilization in the CP group. We proposed that even at high levels of performance, the residual effects of CP may negatively affect performance through selection of conservative pacing strategies during exercise.

ABSTRACT NUMBER / ABSTRAKNOMMER: 4

DOES ADHERENCE TO INTERNATIONAL HEAT GUIDELINES AFFECT INJURY AND ILLNESS IN ATHLETES WITH DISABILITY, THE DOHA EXPERIENCE

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The American College of Sport Medicine (ACSM) position stand of 2007 states that for acclimatized, fit individuals, intense exercise should be limited at wet bulb globe temperatures of 30.1 – 32.2 °C, and at temperatures above 32.3°C exercise should be cancelled (Armstrong et al. 2007). However, the 2015 International Paralympic Committee Athletics World Championships were hosted in Doha, Qatar in October. During this month the average low temperature is 25°C whereas the average high temperature is 35°C. The aim of the proposed study would be to retrospectively audit and analyse the injury and illness surveillance statistics from the Doha World Championships and to review the recorded temperatures and to determine if a relationship existed between the temperatures and the reporting of illnesses and injuries. During the pre-competition and competition phase (19 – 22 October 2015) the prevalence of injury was reported as 13.25 injuries per 1000 athlete days and an illness prevalence of 4.08 illnesses per 1000 athlete days. These prevalence's are lower than that found at the London Paralympic Games. This games did however include a greater variety of sports, specifically sports which were shown to have a high rate of injuries such as equestrian and powerlifting (Schwellnus et al., 2013). From these results it is concluded that the heat stress experienced at the IPC track and field World Championships, Doha 2015, did not cause a significant increase in the prevalence of injury or illness in athletes with physical impairments.

ABSTRACT NUMBER / ABSTRAKNOMMER: 5

KNOWLEDGE, BELIEFS AND PRACTICES OF PERSONS WITH SPINAL CORD INJURY ON PRESSURE ULCERS.

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Background : Pressure ulcers are a serious, but preventable, secondary complication of spinal cord injury (SCI). Pressure ulcers limit community integration, and are potentially life-threatening to the individual. They also put an increased financial and care burden on health systems. Knowledge, beliefs and practices impacts prevention of pressure ulcers.Aim : To describe the knowledge, beliefs and practices about pressure ulcers of clients with SCI who received rehabilitation at a Cape Town rehabilitation centre.Methods :. A quantitative, descriptive study, that employed consecutive sampling, was done. Participants included in patients (n=30), out patients (n =33) and peer supporters (n = 8). Data was collected during April and March 2015 with a questionnaire developed through collating existing questionnaires and adapting it for the study context. Descriptive analysis of data was done.Results : The mean combined knowledge score was 23,9 out of a possible 56 (42,7%). The majority of participants (88.7%) believed pressure ulcers to be serious and 45% thought they were likely to develop a PU. They believed daily skin checks (80.3%), weight shifting (86%) and limiting sitting time (80.3%) could prevent PU development. Pressure relief was not practiced by 59% of participants, while 61% did not perform skin inspection and 62% smoked. Conclusion : Participants showed a lack of knowledge which might have impacted their beliefs and pressure ulcer prevention practices negatively. The study findings can be used to assist with the development of a contextually relevant training programme on pressure care.

ABSTRACT NUMBER / ABSTRAKNOMMER: 6

ARBEIDSTERAPEUTE SE PERSPEKTIEWE EN ERVARINGS RAKENDE DIE BEMAGTIGERS EN HINDERNISSE MET DIE HERINTEGRASIE VAN ADOLESSENTE, IN DIE WES-KAAP, MET TRAUMATIESE BREINBESERINGS (TBB) TOT DIE SKOOL.

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Inleiding: Traumatiese breinbeserings (TBB's) is 'n toenemende toestand onder adolessente in die Wes-Kaap en word hoofsaaklik veroorsaak deur substansemisbruik, misdaad asook motorongelukke. TBB's lei tot gevolge wat gedurende Arbeidsterapie-behandeling die herintegrasie tot die skool kan bemagtig of belemmer. Doel van studie: Die navorsingstudie poog om die perspektiewe van Arbeidsterapeute, rakende die invloed van bemagtigers en hindernisse op die herintegrasie van adolessente met TBB's tot die skool, te verken. Metode: 'n Kwalitatiewe studie is uitgevoer, waartydens 'n kollektiewe gevalstudie tradisie gevolg is om inligting te verkry van tien Arbeidsterapeute vanuit die Wes-Kaap. Die seleksie kriteria vir die studie was 'n minimum van twee jaar werkservaring in Neurochirurgie en registrasie by die HPCSA. Die data is verkry d.m.v. semi-gestruktureerde onderhoude met die deelnemers. Bevindinge: Die data van die onderhoude is getranskribeer en geanaliseer. Kategorieë het onstaan, waarna tema's ontwikkel is, naamlik die Voorbereidingsproses tot herintegrasie, Bemagtigers tot herintegrasie, Hindernisse tot herintegrasie en Aanbevelings van die Arbeidsterapeute. Daar is gemeld dat die hoof hindernisse tot herintegrasie die tekort aan LSEN skole is asook die finansiële aspekte betrokke by die rehabilitasie en herintegrasie proses. Daar is ook verwys na die oneffektiewe kommunikasie tussen rolspelers en die beperkte kennis van onderwysers rakende die hantering van die adolessente met TBB's. Die hoof bemagtigers wat deur die Arbeidsterapeute identifiseer is, is die ondersteuning gebied aan die adolessente deur die familie asook die fasiliterende invloede by die skool. Verder het die adolessente se motivering tot behandeling as dryfkrag tot herintegrasie gedien, tesame met die afwesigheid van fisiese- en kognitiewe uitvalle. Aanbevelings: Die bevindinge, asook die aanbevelings is waardevol ten einde die toepassing deur rolspelers te bewerkstellig. Dit kan verseker dat herintegrasie van adolessente met TBB's spoedig en suksesvol kan plaasvind, die adolessente bemagtig om hul skoolloopbaan te voltooi en dus die adolessent se ontwikkeling te optimaliseer.

ABSTRACT NUMBER / ABSTRAKNOMMER: 7

THE USE OF WII AS REHABILITATION FOR PATIENTS WITH TBI - REVIEW

WII AND TBI GROUP (STELLENBOSCH UNIVERSITY - PHYSIOTHERAPY DIVISION)

Final abstract not received in time for print

ABSTRACT NUMBER / ABSTRAKNOMMER: 8

SR-EFFECTIVENESS OF PBWSTT VS PHYSIOTHERAPY AND/OR OVERGROUND GAIT TRAINING IN CHILDREN WITH CP

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SYSTEMATIC REVIEW: Effectiveness of PBWSTT versus physiotherapy and/or overground gait training in children with CPAbstractBackgroundCerebral Palsy (CP) is a common cause of physical disability in children and affects activities of daily living. Children with CP have problems with ambulation and balance. Partial bodyweight supported treadmill training (PBWSTT) is an intervention that provides task specific gait training.ObjectiveDetermine if PBWSTT is more effective, in improving function and gait in ambulatory children and adolescents with CP compared to physiotherapy and/or overground gait training. MethodologySeven databases namely CINAHL, Cochrane, OT Seeker, PEDro, Pubmed, Science Direct, and Scopus were searched by five reviewers through the library of Stellenbosch University. Search terms included treadmill training, Cerebral Palsy, Physical Therapy OR Physiotherapy, partial body weight, function, gait OR walking. The adapted "JBI Data Extraction Form" was used to extract data from the selected articles and results are presented in narrative form and where applicable, statistical pooling was used.ResultsThe four RCTs used for this SR scored an average of 7/11 on the PEDro scale. The results show an improvement for all outcomes in the PBWSTT group as well as the physiotherapy group, but there was no significant difference between the two groups barring one. The only outcome that showed a significant difference was gait speed, where treadmill training proved to be the more favourable treatment in the short-term (2-4 weeks). It indicates a statistically significant difference which favours PBWSTT group compared to the physiotherapy group ($p = 0.04$).ConclusionsIn conclusion there is high level evidence (II) that suggest that PBWSTT has no clinical significant advantage over physiotherapy and/or overground walking. Statistical significance was only found for short-term effects in gait speed with the use of PBWSTT for children with CP.

ABSTRACT NUMBER / ABSTRAKNOMMER: 9

THE EFFECTIVENESS OF PROPRIOCEPTIVE AND NEUROMUSCULAR TRAINING COMPARED TO BRACING IN REDUCING THE RECURRENCE RATE OF ANKE SPRAINS IN ATHLETES

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BACKGROUND:Ankle sprains are common musculoskeletal injuries in which the ligaments of the ankle partially or completely tear due to sudden stretching. Internationally, nearly one-half of all ankle sprains occur during athletic activity in field and court sports, with basketball being the most commonly involved sport. OBJECTIVES:To establish the best available evidence to determine if PNT is more effective compared to bracing in reducing the recurrence rate of ankle sprains in

athletes.METHODOLOGY:The following seven computerised bibliographic databases, accessed via the Stellenbosch University Library and Information Service, were searched by six researchers. The main search terms used were "ankle sprains", "proprioceptive training", "neuromuscular training" and "bracing". The quality of the trials included were critically appraised according to the PEDro scale. The RevMan 5© software was used to pool results from the included articles and illustrate the combined data in the form of forest plots.RESULTS:Three studies met the inclusion criteria and the quality according to the PEDro scale ranged from 5/10 – 7/10. The pooled data showed no difference between PNT and bracing in reducing the recurrence rate of ankle sprains in athletes at 12 months after initiation of the study.CONCLUSION:This systematic review of the overall effect suggested that current evidence does not favour the use of PNT over bracing in reducing the recurrence rate of ankle sprains, however both are individually equally effective in this regard. The quality of the trials included in this review qualifies it as level II evidence. Physiotherapists are advisedto use either PNT or bracing according to the patients preference and their own expertise. Further studies should be conducted to determine the effect of PNT and bracing in reducing recurrence rate of ankle sprains, as well as patient-reported outcomes such as pain, ankle instability and severity of injury.

Posters/ Plakkate

ABSTRACT NUMBER / ABSTRAKNOMMER: 10

OPERATIONS PERFORMED BY THE NATIONAL SEA RESCUE INSTITUTE OF SOUTH AFRICA OVER A 3-YEAR PERIOD

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Introduction: The National Sea Rescue Institute (NSRI) of South Africa is a non-profit organization responsible for ~97% of maritime search and rescue operations in South Africa (including inland navigable waters). The study describes all operations performed by the NSRI over a 3-year period.Methods: The NSRI operational database was analyzed from 1 January 2010 to 31 December 2012. Summary statistics are presented.Results: The NSRI performed 1887 operations (mean per month = 52.4; maximum = 119) during the study period (Figure 1). Assistance was provided to 605 boats (324 towed) and 1946 people. Operations included body recovery searches (n=115, 6.1%), road accidents (n=29, 1.5%), and flooding incidents (n=17, 0.9%). Land-based operations included 50 (2.7%) marooned persons or mountain hikers; 16 requiring medical evacuation. Sporting incidents related to 73 swimmers or divers (3,9%) and 67 (3.6%) surfers, kite-surfers and windsurfers. Six shark attack victims (0,3%) were rescued. Six hundred and twenty two (32%) people sustained injuries (Figure 2) and 103 (5.5%) lost their lives (Figure 3). South Easterly winds (n=596, 32%), swells of 1-2m (n=736, 39%) and good visibility (n=1436, 76%) were the most common environmental conditions.Conclusion: The NSRI assisted people in many different ways. The number of drowning-related incidents are a concern and preventative measures should be prioritized.

ABSTRACT NUMBER / ABSTRAKNOMMER: 11

THE WESTERN CAPE POISONS HELPLINE, AN INNOVATIVE AND UNIQUE SERVICE IN AFRICA.

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Background:South Africa has three Poisons Information Centres of which two are located in the Western Cape: the Red Cross Poisons Information Centre and the Tygerberg Poisons Information Centre . The activities of the two units differ, but their telephone services overlap. Objective:Collaboration between two poison centres to enhance the efficacy of the poison telephone service in South Africa. Methods: Due to important technological developments (telephonic and computing) the two centres combined their telephone services on 1 June 2015 and initiated the Western Cape Poisons Information Helpline. A dedicated telephone line with a single share call telephone number 0861 555 777 was introduced. Data from poisoning cases are entered in real-time, while a call is in progress, on a live server-based data system called Afritox Telelog. The Telelog system uses a FileMaker application, licensed through Apple Inc, and is set up for multiple users on a Microsoft platform. Users can be logged on simultaneously and can perform data entry or run reports at the same time. Results and Discussion: The new service has several advantages:• Simplified access to poisoning advice with a single national number to call• Pharmacists and doctors run the after-hours service with medical specialists providing Tier 2 support• Pooling of call data provides better understanding of poison exposures in South Africa• Improved and harmonized poisoning information provided to healthcare professionals and the general public.• Staff of the poisons information centres have expertise in different aspects of toxicology and the joint service gives an opportunity for experts to share their knowledge. Conclusion: This service is unique to Africa and other developing countries should be encouraged to use a similar model for networking and sharing of resources and expertise.

ABSTRACT NUMBER / ABSTRAKNOMMER: 12

BERG ADDER BITE

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The berg adder (Bitis atropos) is a minor adder with an average adult length of 30 – 35 cm. It is bad tempered and aggressive. Envenoming causes a unique clinical syndrome characterized by local cytotoxicity, profound ophthalmoplegia, respiratory depression and hyponatremia. A 5½ year old boy was walking in the fynbos in the Betty's Bay region when he felt a sharp pain in his left foot and thought that it was a thorn injury. He developed nausea, vomiting and became "very tired". 5 hours after the incident he flew to Johannesburg with his parents. He had difficulty in walking and had to be carried on board. During the flight his eyes were half closed and he looked as if he was falling asleep, with eyes "rolling back". On arrival in Johannesburg he was immediately taken to the hospital where he had to be resuscitated, intubated and ventilated. His foot was red and slightly swollen. He had severe dilated pupils. A CT scan of the brain was normal. A high level of benzodiazepines was detected in his urine, leading medical personnel to consider the possibility of benzodiazepine overdose. Flumazenil was administered without any effect. At this stage, because of the slight swelling and ecchymoses of the foot and flaccid paralysis, the possibility of Cape cobra bite was considered. Eight vials of polyvalent snake antivenom were administered. The patient did not respond to the antivenom and the Tygerberg Poison Information Centre was consulted. A diagnosis of berg adder bite was made based on the presence of local cytotoxic effects, ptosis, marked ophthalmoplegia, respiratory depression and no response to the polyvalent antivenom. On day three mild hyponatraemia developed. The patient was extubated 5 days after the incident and 4 weeks later ophthalmoplegia was still present. Antivenom is not available for berg adder bites.

ABSTRACT NUMBER / ABSTRAKNOMMER: 13

FACTORS FACILITATING COMPLETION OF MAINSTREAM EDUCATION IN AN ORDINARY SCHOOL: REFLECTIONS OF YOUNG ADULTS WITH CEREBRAL PALSY

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Inclusive education is supported internationally and nationally, but most children with physical disabilities are still excluded from ordinary schools in South Africa. The purpose of this paper is to add to the body of knowledge about factors that facilitate the inclusion of learners with cerebral palsy. This will complement the more widely known barriers to education, from the perspectives of teachers and/or parents and in other countries. The research question was: What were facilitating factors within the lived experience of young adult participants with cerebral palsy, which allowed them to access mainstream education and achieve a Grade 12 pass in an ordinary school in Cape Town, South Africa? Two in-depth interviews were conducted with each of the three participants in English. Interpretative Phenomenological Analysis (IPA) led to the identification of three superordinate themes: "Treat me the same, but treat me differently", "Good communication is vital" and "Ons gee om" [We care], each of which comprised two subordinate themes. The facilitating factors identified are discussed within the framework of the International Classification of Functioning, Disability and Health (ICF). Practical implications and recommendations are proposed.

ABSTRACT NUMBER / ABSTRAKNOMMER: 14

CONTINUUM OF CHANGE IN THE ACHILLES AND PATELLA TENDONS OF ASYMPTOMATIC TRACK AND FIELD ATHLETES

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Tendinopathy is a common cause of pain and disability in athletes. It has been found that underlying tendon degeneration starts long before the onset of symptoms and often remains asymptomatic.Aim: To observe the prevalence of abnormal sonographic changes in the tendons of asymptomatic athletes over time and to determine whether a relationship exists for the development of tendinopathy. Methods: The Achilles (A) and patellar (P) tendons of 34 track and field athletes (21 males, 13 females, mean age 21 ± 2 yrs.) were examined with diagnostic ultrasound for the presence of intratendon echoic changes. Based on findings tendons were classified as either normal (N) or showing signs of reactive tendinopathy (RT), tendon dysrepair (TD) or degenerative tendinopathy (DT). Assessment occurred at baseline, 6 months and 12 months. Results: 22 athletes completed the study and 88 tendons were included. Initially 43 tendons (49%; 11 A vs. 32 P) displayed abnormal sonographic signs of which17 cases were RT (7 A vs. 10 P), 20 TD (2 A vs. 18 P), and 6 DT (1 A vs. 5 P). After 6 months 25 cases with abnormal sonographic signs were found (28%; 5 A vs. 20 P) consisting of 13 RT (3 A vs. 10 P), 10 TD (2 A vs. 8 P) and 2 DT (P). At 12 months 49 tendons presented with abnormal sonographic signs (56%; 16A vs. 33 P) consisting of 25 RT (14 A vs.11 P), 20 TD (2 A vs. 18 P) and 4 cases of TD (P). Conclusion: The presence of abnormal sonographic change is common among track and field athletes. A higher incidence of changes was found pre-season compared to mid-season. Despite a high incidence of abnormal sonographic changes noted during pre-season no athletes developed

Theme 4 / Tema 4

Non Communicable Diseases / Nie-oordraagbare Siektes

ORAL PRESENTATIONS / REFERATE

ABSTRACT NUMBER / ABSTRAKNOMMER:1

RENAL BIOPSY FINDINGS IN DIABETIC PATIENTS AT TYGERBERG HOSPITAL

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ObjectiveTo determine the prevalence of non-diabetic renal disease in diabetic patients undergoing renal biopsy and to classify the non-diabetic renal disease present. We also attempted to identify clinical features which may predict the type of renal disease present, and its impact on renal outcome.MethodBetween January 2003 and December 2012, 100 patients with diabetes mellitus had a renal biopsy at Tygerberg hospital. All of these biopsies were reported by a single pathologist. These patients were retrospectively analysed and divided into those with diabetic nephropathy (DN), non-diabetic renal disease (NDRD) or combined renal disease (CD). ResultsOf the 100 patients, 52% were females, 60.5% were of mixed ancestry, 27.5% were black and 12% were white. 88% of the patients had diabetes mellitus type II. The mean age was 48 years old (SD 11.4). 55 patients (55%) had DN only, 15 patients (15%) had NDRD only and 30 patients (30%) had CD. The most common NDRD present was mesangiocapillary glomerulonephritis. NDRD tended to be similar to that of non-diabetic patients in the rest of the Western Cape. Duration of DM longer than 12 years and the presence of the clinical triad of hypertension, nephrotic range proteinuria and diabetic retinopathy strongly predicted DRD. Patients with haematuria and those with a higher creatinine at the time of biopsy were more likely to have NDRD. Analysis of the change in GFR after biopsy showed that patients with NDRD tended towards improvement of renal function over time while patients with DN and CD had varying rates of decline. ConclusionRenal disease other than pure diabetic nephropathy was present in 45% of patients with diabetes mellitus undergoing renal biopsy. Clinical features were identified to aid in distinguishing between DRD and NDRD. Patients with NDRD tended to have a better renal outcome.

ABSTRACT NUMBER / ABSTRAKNOMMER: 2

A COMPARISON OF MORPHOLOGY AND MORPHOMETRY ANALYSIS IN THE EVALUATION OF ADULT CARDIOMYOCYTE INJURY

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Injury of adult cardiomyocytes by ischemia/reperfusion (I/R) or hypoxia/reperfusion (H/R) cause viable rod shaped cells to shorten by contracture to a dead round hypercontracted shape. Injury is more commonly evaluated by morphology rather than morphometry, yet it is not known which method is more reliable. Therefore the aim was to compare cell shape analysis to cell length and L/W as indicators of cardiomyocyte injury.Cardiomyocytes were subjected to I/R and H/R, followed by percentage cell viability assessment where viable cells were selected by rod shape, cell length ≥ 55 um and L/W ≥ 1.5. Hypercontracted cardiomyocytes measured here had a length < 55 um, while

Geisbuhler and Rovetto (1990) showed hypercontracted cells have an L/W < 1.5. All three methods showed a more severe reduction in percentage cell viability by I/R than H/R. However, rod shaped viable selection consistently reported a significantly lower percentage viability than length ≥ 55 um and L/W ≥ 1.5, where both these morphometric methods provided similar values. Further analysis of the three viable populations showed that rod shape analysis mainly selected cells that were unharmed, reported by length and L/W measurements. Although length and L/W provided similar values, cells selected by length showed a clearer induction of contracture in the viable population.We conclude that viable cells selected based on cell length ≥ 55 um and L/W ≥ 1.5 reported similar contracture and percentage viability, but cells with a length ≥ 55 um reported more injury than cells with L/W ≥ 1.5. In contrast, rod shaped cells was bias towards uninjured cells and is therefore not a reliable parameter to use for evaluating adult cardiomyocyte injury.

ABSTRACT NUMBER / ABSTRAKNOMMER: 3

PPAR α γ STIMULATION IS BENEFICIAL IN COMBINED ANTIRETROVIRAL THERAPY

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Combined anti-retroviral therapy (cART) has markedly reduced HIV/AIDS morbidity and mortality, however long-term cART use may result in metabolic and cardiovascular complications.Aim: To investigate the beneficial effects of PPAR α γ stimulation in cART.Methods: Control male Wistar rats received standard rat chow (Standard diet - SD), whereas diet-induced obese rats received high caloric diet (HCD) for 16 weeks; after 10 weeks, second line cART (Lopinavir/ritonavir + azidothymidine/Lamivudine) with or without the dual peroxisome proliferator-activated receptor (PPAR) $\alpha\gamma$ agonist, saroglitazar were administered for 6 weeks. Thereafter, non-fasted rats were weighed, anaesthetized and blood glucose measured. They were then sacrificed, blood collected, hearts removed and exposed to 35 min regional ischemia and 60 min reperfusion. Percentage functional recovery, infarct size (IS), visceral fat mass; serum lipids and oxidative stress markers were assessed.Results: The abdominal fat / body weight ratio was higher in HCD than SD groups (SD control 3.58 ± 0.26% vs HCD control 6.55 ± 0.42%, $p<0.0001$). However, this ratio was not affected by cART and / or Saroglitazar.Percentage recovery (cardiac output, CO) was lower in HCD + cART than HCD control (27.32 ± 2.88% vs 35.12 ± 3.17%, $p=0.048$). However, cART + Saroglitazar in HCD significantly improved the recovery compared to HFD cART group (35.67 ± 2.54% vs 27.32 ± 2.88%, $p= 0.027$)IS was significantly lower in HCD + cART than HCD control (17.83 ± 2.7% vs 24.19 ± 2.14%, $p=0.038$) but was not altered by Saroglitazar treatment. Serum conjugated dienes (µmol/L) were lower in the HCD + cART + saroglitazar than HCD + cART group (52.04 ± 4.50 vs 63.46 ± 3.94, $p=0.012$). Conclusion: PPAR $\alpha\gamma$ stimulation improves cardiac performance and moderately reduces oxidative stress evidenced by decreased lipid peroxidation in the Wistar rat model of diet induced obesity and cART.

ABSTRACT NUMBER / ABSTRAKNOMMER: 4

THE PREVALENCE AND CAUSES OF WARFARIN TOXICITY IN TYGERBERG HOSPITAL

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BACKGROUND: Warfarin is a widely used anticoagulant for prevention and treatment of thromboembolism. Warfarin toxicity is a frequent complication. OBJECTIVES: To determine the prevalence, causes and management of warfarin toxicity in Tygerberg Hospital.METHODS: We conducted a retrospective clinical record review of patients admitted to Tygerberg Hospital with warfarin toxicity from June 2014 to June 2015 as identified through the National Health Laboratory Service (NHLS). We included patients presenting with warfarin toxicity, defined by an admission INR >5, and requiring at least one additional inpatient INR measurement.RESULTS: We identified 467 patients of whom 126 met the inclusion criteria. 60% (76/126) were female with a mean (SD) age of 59 (15) years. Mean admission and discharge INRs were 8.12 and 2.38 respectively. 15%(19/126) died before discharge. The cause of warfarin toxicity was identified in 16.6% (21/126) of cases. 44%(10/21) were due to dosing errors, 14.3% (3/21) drug-drug interactions, 9.5% (2/21) acute illnesses and 9.5% (2/21) inability to control INR despite best effort. 28% (35/126) presented with major bleeding, 18% (23/126) non-major bleeding, and 54% (68/126) without bleeding. The most frequent sites were upper gastrointestinal (31%, 18/58), haemoptysis (19%, 11/58), and epistaxis (17%, 10/58). Seven cases (12%, 7/58) of intracranial haemorrhage were reported. The average number of interventions were 1.6 with 33.3% (42/126) patients receiving no interventions, 35.7% (45/126) and 23.8% (30/126) receiving one and two interventions respectively. The most frequently used interventions were vitamin K (45), fresh frozen plasma (FFP) (43) and packed red blood cells (RBC) (34).CONCLUSION: In majority of patients presenting with warfarin toxicity, the cause was not identified. The most frequent cause was dosing errors. The majority of patients did not present with bleeding, the most frequent sites were the gastrointestinal and respiratory tracts. Vitamin K, FFP and packed RBC were the most frequently used interventions.

ABSTRACT NUMBER / ABSTRAKNOMMER: 5

LESSONS LEARNT FROM PLANNED, TARGETED DISSEMINATION OF A SYSTEMATIC REVIEW ON A CONTROVERSIAL NUTRITION TOPIC

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Background: Low carbohydrate diets for weight and cardiovascular benefits have generated controversy between advocates, health professionals and researchers. At the request of an external stakeholder, we conducted a systematic review and disseminated its findings using a knowledge translation (KT) plan to inform ongoing debates. Aim: To describe the stakeholder-specific KT plan for a systematic review, assess its 'reach' and reflect on lessons learnt. Methods: Drawing on Canadian Institutes of Health Research methodology, we planned, developed and implemented a seven-step KT plan. We identified knowledge-user audiences and specific stakeholders, and through engagements, selected diffusion and dissemination strategies, products, activities and channels to reach audiences.

We developed seven activities/products, tailored messages and content, prepared an evaluation, then implemented, reviewed the evaluation and reflected. 'Reach', defined here as exposure to information, was measured by capturing all dissemination, including media monitoring and non-traditional metrics. Results: Planning was initiated two months before publication in an open-access journal. Audiences included researchers, health professionals, policymakers, media and public.Implementation resulted in wide 'reach'. At four months, metrics showed 17504 article views, Altmetric score in 99th percentile, media clip-count of 199 (advertising value equivalency: R8447011; estimated circulation: 14621186), broad social media coverage (hashtag timeline deliveries 50824, tweets reaching upper-bound of 288945 combined followers), 891 product downloads,14 scientific presentations, and two international uptake requests. 'Reach' was likely positively influenced by the controversy/public interest, and interactions between the researchers and stakeholders. There is value in responding to stakeholders, producing a timely, sound review, disseminating it via a planned, targeted strategy, and being prepared and responsive to media requests.Conclusions: Planning and implementing a targeted dissemination strategy for a systematic review is likely to increase the 'reach' and possibly use of rigorous evidence. Timeliness is important and translation of research findings requires detailed, opportune planning and preparation, particularly for media-hot topics.

ABSTRACT NUMBER / ABSTRAKNOMMER: 6

COFFEE OR TEA: WHICH ONE MAY BE BENEFICIAL FOR WEIGHT-LOSS?

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Background: Currently available weight-loss therapies are plagued by low efficacy and unacceptable side-effects. Aspalathin, found in caffeine-free Rooibos, has anti-hyperglycaemic properties, but its effects on adiposity have not been investigated. Caffeine, a constituent of tea and coffee, is commonly used at high doses in purported weight-loss remedies. However, caffeine is structurally and functionally closely related to isobutyl-methylxanthine (IBMX), the non-selective phosphodiesterase inhibitor commonly used to stimulate adipogenesis in cultured pre-adipocytes. The aim of this study was to investigate the modulation of in vitro adipogenesis in cultured adipose-derived stromal cells (ADSCs) by aspalathin and caffeine, to determine whether either of these compounds may be able to contribute to weight-loss. Methods: Subcutaneous and visceral adipose tissue samples were excised from adult male Wistar rats and naïve ADSCs were isolated. Cultured ADSCs were differentiated into mature adipocytes using adipogenic induction media, consisting of standard growth media supplemented with IBMX, insulin, indomethacin and dexamethasone (AM-IIDX). In parallel, cells were treated with AM supplemented with 50μM aspalathin (AM-IIDX-Asp) or AM with 0.3 mM caffeine (AM-IIDX-Caf). In addition, cells were also treated with AM without IBMX (AM-IID) in the absence or presence of 0.3 mM caffeine (AM-IID-Caf). After 12 days, intracellular lipid accumulation was quantified using Oil Red O staining and image analysis. Results: Omission of IBMX from AM strongly inhibited lipid accumulation. Caffeine, despite being similar to IBMX, could not replace the adipogenic properties of IBMX, and also reduced AM-induced lipid accumulation in the presence of IBMX by 50-70%. Aspalathin resulted in approximately 30% reduction in lipid accumulation against the background of AM. Discussion: Both aspalathin and caffeine inhibited in vitro adipogenesis, although the concentration of aspalathin required was far higher than that found in a standard tea extract. However, aspalathin may still be considered for use as a synthetic caffeine-free supplement supporting weight-loss therapy.

ABSTRACT NUMBER / ABSTRAKNOMMER: 7

HIGH FAT DIET-INDUCED OBESITY: THE ROLE OF EPAC (EXCHANGE PROTEIN DIRECTLY ACTIVATED BY CYCLIC AMP) IN MYOCARDIAL ISCHAEMIA/REPERFUSION OF EX VIVO RAT HEARTS.

Z NDLOVU, PROF H G STRIJDOM, PROF A LOCHNER, DR E MARAIS (STELLENBOSCH UNIVERSITY - DEPARTMENT OF BIOMEDICAL SCIENCES, DIV. MEDICAL PHYSIOLOGY)

Obesity is the major risk factor for cardiovascular disease. Emerging evidence suggest that Exchange protein directly activated by cyclic AMP (Epac) could be a new therapeutic target for obesity and cardiovascular disease. We aimed to elucidate the degree of involvement of Epac activation in mediating cardioprotection by pre- or post-treatment of obese ischaemic hearts with an Epac selective agonist. Wistar rats on a high fat diet (HFD, supplementing normal rat chow with condensed milk and Holsum fat) for 16 weeks were compared to age-matched controls. Isolated perfused working rat hearts were used to evaluate mechanical function. Regional ischaemia was induced by ligating the left descending coronary artery for a period of 35 min followed by 60 min reperfusion and infarct size determination. Hearts were perfused with a selective Epac1 agonist (8-CPT-2'-O-Me-cAMP, CPT) for 10 minutes immediately before (pre-treatment) or after (post-treatment) sustained ischaemia. Pre-treatment with CPT before regional ischaemia significantly reduced infarct size in both control (control: 31.09±3.9 vs. control+CPT: 13.68±2.3, $p<0.001$) and high fat diet (HFD) groups (HFD: 24.84±2.8 vs. HFD+CPT: 14.54±2.1, $p<0.01$) during reperfusion. However, CPT reduced functional recovery in the HFD group (% recovery HFD 55.29±3.8 vs. HFD+CPT 27.45±7.9, $p<0.005$). Post-treatment with CPT after regional ischaemia significantly reduced the infarct size in the control group (control 23.14±1.9 vs. control+CPT 12.87±3.8, $p<0.005$), but in the HFD the reduction with CPT was not significant. Selective Epac activation before or after ischaemic exposure of obese hearts had significant cardioprotective effects suggesting that stimulation of this signalling pathway has therapeutic potential.

ABSTRACT NUMBER / ABSTRAKNOMMER: 8

LUPUS NEPHRITIS AT TYGERBERG HOSPITAL - AN EXPERIENCE OVER THREE DECADES

DR URISHA BRIJLAL (TYGERBERG HOSPITAL - INTERNAL MEDICINE)

Background: Systemic lupus erythematosus (SLE) is a multisystem disease with serious complications, including lupus nephritis. SLE is particularly prevalent in the Western Cape, and predominantly affects women in the prime of their lives. Renal biopsy is an important tool for the management of the lupus patient with kidney disease as it guides treatment and is of great prognostic importance. Various classifications have been employed over the years and the current classification, accepted widely, is the ISN/RPS 2003 Classification of Lupus Nephritis. Aims: To ascertain if there has been a change in the spectrum of renal pathology, demographics, patient characteristics, as well as the long-term outcomes in patients with lupus nephritis over three decades. Methods: This is a retrospective review of 315 records of SLE patients with suspected renal disease who underwent renal biopsy in our department at Tygerberg Hospital between 1 January 1983 and 31 December 2012.Results: Class IV LN consistently remained the most common pattern throughout the three decades. We noted an increase in the trend of class III lupus nephritis (LN) and class V LN over the three decades, as well as a decrease in class II LN. Mortality in our cohort was associated with hypertension, end-stage renal disease (ESRD), decreased C3 levels, high activity and chronicity scores at initial biopsy on univariate analysis. The overall 5-year survival for this cohort was 67% (95% CI, 60-72%).

Conclusion: We confirm that class IV LN is the most frequent class occurring in our cohort of patients at Tygerberg Hospital and had the poorest survival rates compared to the other classes. SLE, in our experience, is an aggressive disease and renal involvement carries a grave prognosis, in line with reports from other centres in South Africa.

ABSTRACT NUMBER / ABSTRAKNOMMER: 9

THE HEART OF THE MATTER: HOW VISUAL PARTICIPATORY METHODS CAN FACILITATE KNOWLEDGE EXCHANGE FOR COMMUNITY ENGAGEMENT IN BIOMEDICINE

G BLACK, H STRIJDOM

Abstract not finalized by time of going to print

ABSTRACT NUMBER / ABSTRAKNOMMER: 10

A REVIEW OF ANIMAL MODELS FOR DIABETES MELLITUS: CURRENT CONCEPTS, RESEARCH AND IMPLICATIONS

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ABSTRACTOver the decades, numerous animal models have been used to investigate the metabolic syndrome (MetS). Rodents are an attractive research tool and are commonly used, in part, due to their similarities with the human anatomy. Their genome is well described and characterised and fast reproduction rates makes them cost efficient. Environmental models such as Streptozotocin (STZ) treatment; exposure to different diets; as well as partial pancreatectomy models are available. Various transgenic and polygenic mouse models are also well developed.Of the major concerns associated with diabetes relates to the micro- and macro-vascular complications which contribute greatly to morbidity of the condition. Progression from prediabetes to overt diabetic state promotes an adverse vascular milieu with accompanying complications occurring over many years with the aetiopathogenesis of endothelial cell damage (ECD) differing in Type 1 and Type 2 Diabetes Mellitus (DM).For this reason either the characteristics of the model should mirror the pathophysiology and natural history of diabetes, or the model should develop complications with an aetiology similar to the human condition. There appears to be no single, risk free model that encompasses the many complicated progressive characteristics of Type 2 DM. This review presents the challenges of selection of an ideal rat model design for histological investigation of Type 2 DM in the brain.

ABSTRACT NUMBER / ABSTRAKNOMMER: 11

MAGNIFYING MOVEMENT: THE USE OF EULERIAN VIDEO MAGNIFICATION TO ENHANCE DETECTION OF MUSCLE FASCICULATIONS IN ALS

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Background: Muscle fasciculations is an early and typical sign closely associated with amyotrophic lateral sclerosis (ALS). Detecting fasciculations is difficult and is classically done through clinical inspection, needle EMG and ultrasonography. However these techniques have significant limitations, including patient discomfort, screening only one muscle at a time, and cost. Scientists at Massachusetts Institute of Technology recently developed software termed Eulerian Video Magnification (EVM). It reveals detail in video footage by exaggerating differences in pixels over time, making changes that are otherwise invisible, visible. Objectives: To determine whether the use of EVM increases the detection of fasciculations in video footage of muscle groups of people with ALS (PALS), compared to direct clinical observation (DCO). Methods: 7 PALS and 7 controls with non-neuromuscular disorders were recruited, and thirty-second long video recordings were made of 9 regions (bilateral arms, thighs, hamstrings, calves, and back), with fasciculations counted by DCO during the same period. These recordings were then motion-magnified, and both the original and magnified recordings were reviewed randomly by 2 independent assessors, recording the number of fasciculations visible per video. Results: In muscle groups of PALS, the median fasciculation count was 1 by DCO (range 0-10) and 3 in the magnified recording (range 0-15; p<0,0001). EVM revealed more fasciculations than DCO in 37 (61%) muscle groups. In muscle groups of controls, the median fasciculation count was 0 for both DCO (range 0-4) and EVM (range 0-6). EVM revealed more fasciculations than DCO in 7 (11%) muscle groups.Conclusions: Compared to DCO, EVM significantly increased the detection of fasciculations in muscle groups of PALS, but not controls. The technique is non-invasive, requires no specialized equipment, and can be used to screen large areas of muscle at once. If used to supplement clinical examination, EVM has the potential for earlier identification of fasciculations in ALS.

ABSTRACT NUMBER / ABSTRAKNOMMER: 12

GLUCOCORTICOIDS REDUCE THE CELL VIABILITY OF MSCS DERIVED FROM THE PROXIMAL FEMUR BUT NOT FROM BONE MARROW OF RATS

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Background: Glucocorticoid induced osteoporosis (GIO) is associated with reduced numbers of mature osteoblasts, resulting in lower bone formation. Vanadate, a non-specific protein tyrosine phosphatase inhibitor, prevents GIO in rats, although the mechanism is unclear. Compared to other bone sites, GIO disproportionately affects the proximal region of the femur, and we considered that glucocorticoids may have a stronger negative affect on the populations of osteoprogenitor cells (mesenchymal stem cells: MSCs) in the proximal femur, compared to bone marrow MSCs. Consequently, we investigated the effects of glucocorticoids and vanadate on the viability of cultured MSCs from bone marrow (bmMSCs) and proximal femur (pfMSCs). Methods: MSCs were isolated from the marrow cavity of the diaphysis and the hard tissue of the proximal region of femora excised from adult male Wistar rats. The cell surface marker profile of the cultured MSCs was characterized by flow cytometry, and multi-potentiality was assessed by osteoblastic and adipocytic differentiation. Cell density, cell viability and apoptosis were quantified by crystal violet staining, MTT assay and Annexin V-PE Apoptosis Detection Kit respectively.Results: PfMSCs and bmMSCs expressed the mesenchymal cell surface marker CD90 and CD106, with low expression of the hemopoietic marker CD45. However,

the bmMSCs rapidly differentiated within 7 days to osteoblasts but required 21 days for adipocytic differentiation, while the inverse was observed for the differentiation of pfMSCs into osteoblasts and adipocytes. Glucocorticoid treatment did not affect the viability of bmMSCs, while in pfMSCs, glucocorticoids caused a reduction in cell viability ($p = 0.021$) and an increase in apoptosis ($p = 0.027$), which could not be prevented by co-treatment with vanadate. Conclusions: During GIO, glucocorticoids may directly cause apoptosis of osteoblastic precursors at the proximal region of the femur but it is unlikely that vanadate prevents GIO through restoring of pfMSC numbers.

ABSTRACT NUMBER / ABSTRAKNOMMER: 13

MITRAL VALVE ABNORMALITIES IN PATIENTS WITH BICUSPID AORTIC VALVES – IS THERE A LINK?

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ObjectivesBicuspid aortic valves (BAV) causing left ventricular outflow obstruction (LVOTo) often forms one of the components of the rare Shone complex, a disease involving the left ventricular outflow (valvular or subvalvular stenosis or coarctation) and left ventricular inflow (parachute mitral valve or supravalvular mitral membrane). In the TAVI era, new questions have arisen about BAV associations and their implications for treatment. We evaluate the spectrum of mitral valve (MV) disease in the setting of BAV/LVOTo. MethodologyA retrospective analysis of echocardiograms done at a large referral hospital over a four year period was conducted in patients with BAV/LVOTo. Clear congenital abnormalities of the mitral valve were evaluated as well as possible minor abnormalities. Findings were compared with age and gender matched controls.ResultsA total of 172 patients were included in this study. One or more congenital mitral valve abnormality was present in 14 (8.2%, $p=0.009$) with a parachute mitral valve in 7 (4.1%), accessory mitral valve leaflets in 4 (2.3%), mitral valve prolapse in 2 (1.1%), 1 cleft mitral valve and the novel finding of a trileaflet mitral valve. Minor abnormalities included an elongated anterior mitral valve leaflet ($p<0.001$), the increased incidence of physiological mitral regurgitation ($p=0.02$), additional papillary muscles ($p<0.001$), changes in the papillary muscle position ($p<0.001$) and an additional chord/tendon found in the left ventricle cavity ($p=0.009$). ConclusionMitral valve abnormalities occur more commonly in patients with BAV/LVOTo than matched healthy individuals. The disease spectrum is wide and includes subtle functional changes such as an increased incidence of physiological mitral regurgitation, morphological abnormalities including an increased anterior mitral valve leaflet length or additional papillary muscles to clear congenital abnormalities including parachute mitral valve. While supporting the hypothesis that abnormalities in these patients extend further than the aorta, none of these abnormalities had a significant functional effect.

ABSTRACT NUMBER / ABSTRAKNOMMER: 14

STAFF HEALTH AND WELLNESS AT THE FACULTY OF MEDICINE AND HEALTH SCIENCES (FMHS), STELLENBOSCH UNIVERSITY (SU): CURRENT STATUS AND NEEDS ASSESSMENT

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The aim was to determine staff health and wellness at the FMHS, SU. Objectives were to compile a basic health profile of staff; to determine attitudes and perspectives towards health and wellness and to conduct a needs assessment regarding facilities and implementation of a wellness program.A retrospective review aimed at the re-evaluation of basic health profile data from Discovery Wellness day reports (2010-2015) was done. Additionally, a descriptive cross-sectional study with an analytical component was conducted. Data was collected utilizing an online survey from current staff at the FMHS, SU. An average of n=130 (SD ± 34.1) FMHS staff members participated in the Discovery Wellness days. Reports from the past 6 years revealed that at least 60% of all staff who participated annually were overweight or obese and at least a quarter (ranging from 25% – 57%) had high cholesterol. More than 65% of participants did not meet the recommendation for being physically active for each year. Three hundred participants completed the survey (51.0% academic; 48.9% administrative). Administrative staff are more likely to consume sugary drinks per week ($p=0.02$) and consume fewer portions of fruits and vegetables per day ($p<0.01$). Seventy percent of staff often or always feel under pressure at work and almost a quarter (22.9%) work >50 hours per week. For both findings ($p<0.01$), significantly more academic staff members were affected. Significantly more academic staff (32.2% vs. 14.4%) do not take tea breaks ($p<0.01$) or do not perceive their environments to be supportive of these breaks ($p<0.01$) compared to administrative staff (30.0% vs. 16.8%). Staff reported that an on-site (30.6%) and holiday child care centre (35.0%) is needed. Staff was found to be generally unhealthy and interventions to help with food choices and managing pressure within the workplace are needed.

ABSTRACT NUMBER / ABSTRAKNOMMER: 15

THE EFFECT TREATMENT OF ROOIBOS TEA ON VASCULAR FUNCTION IN OBESE RAT AORTA

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INTRODUCTION:Obesity is an independent risk factor for the development of endothelial dysfunction and vascular disease. Rooibos tea has been shown to have a positive effect on cardiovascular system and improves the endothelial dysfunction. Our aim was to test the acute effect of administration of Rooibos tea on vascular function in an obesity induced rat model.METHODS:Aortas were obtained from two groups of euthanized male Wistar rats: lean group which was fed with normal rat chow for 22 weeks, and diet group which was fed a high fat diet. Aortas were excised, cleaned, cut into 4mm

rings and placed into an organ bath containing Kerbs buffer (37ºC). Aortic ring function was determined by cumulative phenylephrine induced contraction (PE:100nM-1µM), followed by cumulative acetylcholine induced relaxation (Ach:30 nM-10µM), the tea extract (0.02%) was administered for 30min during stabilisation. Data was analysed using the two-way ANOVA with Bonferroni's post-test.RESULT:The tea decreased the contraction significantly in the lean groups (AUC lean with tea: 58.38 vs lean 42.05, $p<0.01$), while there was no effect on relaxation. However in the diet group the tea increased the contraction significantly (AUC diet: 50.51 vs diet with tea: 58.17, $p<0.05$). While the tea caused a significant reduction in the relaxation in the diet group (AUC diet group: 76.43 vs the diet group with tea: 60.74, $p<0.01$). CONCLUSION:The tea showed anti-contractile effect in the lean group with no effect on relaxation, while in the diet group the tea was pro-contractile and anti-relaxant.

ABSTRACT NUMBER / ABSTRAKNOMMER: 16

AUDIT OF STANDARD OF CARE MEASURES AND COMPLICATIONS IN A TERTIARY TYPE I DIABETIC (DM1) CLINIC: A DIFFERENT PERSPECTIVE.

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Background: Guidelines for the care of diabetics allow clinicians to deliver appropriate standards of care. The uptake rate of recommended preventive measures offered at an adult DM1 clinic (tertiary level), was assessed in a 2014 audit, together with a review of disease severity and complications in these patients. The results of this audit were presented at SEMDSA 2015, where the data was analyzed solely at a per visit level. Because of concern expressed about potential under- or over-representation of uptake rate in some screening areas, or in the prevalence of complications, the data has now been re-analysed at a per patient level. Aims: (1) Conduct an audit of the quality of care delivered to adult diabetics who attend our DM1 clinic. (2) Characterize their burden of illness. (3) Compare results of the 2 analyses. Methods: A retrospective chart review of all patients attending the DM1 clinic in 2014 was performed and re-analysed at a patient-level. If a patient had more than one visit, results were averaged for all visits and the mean was used. Results: 174 patients who attended the clinic during a 12-month period (totaling 455 patient visits), were analysed. When compared to the visit-level analysis, the only notable differences detected were in both the uptake rates of screening for peripheral neuropathy and vascular disease, as well as in the prevalence of these specific complications. The differences were statistically significant ($p<0.05$) with confidence intervals that did not overlap. Results were as follows: screening for neuropathy was 80.5% (vs. 58.0%) and 54.5% for vascular disease (vs. 34.0%). Neuropathy was present in 32.1% (vs. 28.0%) of patients, while vascular disease was present in 6.4% (vs. 3.0%). Conclusion: Analysing data per patient, rather than per visit, revealed significantly improved screening of and increased prevalence of neuropathy and vascular disease.

ABSTRACT NUMBER / ABSTRAKNOMMER: 17

A 5-YEAR RETROSPECTIVE AUDIT OF THE CLINICAL OUTCOME OF INTRAVENOUS IMMUNOGLOBULIN (IVIG) IN ADULT HAEMATOLOGY PATIENTS WITH REFERENCE TO THE USAGE AND COST EFFECTIVENESS AT TYGERBERG HOSPITAL

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ABSTRACT Background: Worldwide there has been an increase in the usage of intravenous immunoglobulin (IVIG). Registred haematological indications according to the Medicines Control Council of South Africa, includes the usage in idiopathic thrombocytopenic purpura (ITP) and the prevention of infections in patients with chronic lymphocytic leukaemia (CLL). However, IVIG is frequently used off label for indications such as pure red cell aplasia (PRCA) due to Parvovirus B19. This study was designed to evaluate the indications and clinical outcomes in haematological patients treated with IVIG for registered and off label indications. Methods: A retrospective audit was conducted at Tygerberg Hospital, Western Cape South Africa, from 1 January 2010 until 31 December 2014 of all patients treated with IVIG in the Division of Haematology. Results: The haematology department used 4 344g of IVIG (16.7%) of the overall IVIG usage. The three main haematological indications were for ITP (65.5%), PRCA (21.7%) and CLL (12.8%). IVIG therapy increased the median platelet count in 85.7% of patients with ITP. There was no beneficial increase in median haemoglobin levels in patients treated for PRCA and the most common infection identified in CLL was pneumonia, requiring a median of 8.5 hospitalisation days. Conclusions: IVIG is still recommended in addition to steroid therapy to increase the platelet count in cases of severe bleeding, but due to the high cost of IVIG, the use in PRCA is not recommended in a resource scarce setting. IVIG is only recommended in patients at risk for severe infections for patients with CLL.

ABSTRACT NUMBER / ABSTRAKNOMMER: 18

THE USE OF MICROSCOPIC HEMATURIA TO EXCLUDE INVASION OF THE URINARY BLADDER BY CERVICAL CARCINOMA CAN REDUCE THE NEED FOR STAGING CYSTOSCOPY

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Abstract:Objectives: To asses if the presence of microscopic hematuria can be used as a screening test to exclude invasion of the urinary bladder by cervical carcinoma.Methods: A prospective observational study was conducted from March to December 2015. All patients diagnosed with cervical cancer who received a staging cystoscopy were asked to participate in the study. Urine was collected by means of catheterization, before cystoscopy and was sent off for dipstick testing and microscopic analysis.Results: 144 women with confirmed cervical cancer participated in the study. 19 Patients had bladder invasion by cervical cancer.Urinary dipstick testing for microscopic hematuria was performed on 143 subjects. 38 Patients urine tested positive for hematuria. The sensitivity of the test was 100%, specificity 85%, negative predictive value 100% and the positive predictive value 50%. Urine microscopy for microscopic hematuria was done on 144 patients urine specimens, if microscopic hematuria is defined as having more than 10 000 erythrocytes per milliliter urine, 44 patients' urine specimens tested positive for microscopic hematuria. The sensitivity was 100%, specificity 80%, negative predictive value 100% and the positive predictive value 43%.Conclusions: Our findings suggest that the presence of microscopic hematuria on a catheter collected specimen can be used as a screening tool to exclude invasion of the urinary bladder by cervical cancer. It can thereby also help identify patients that do not need of a cystoscopy. The detection of microscopic hematuria via urinary dipstick proved statistically similar to the detection of microscopic hematuria via urine microscopy.

POSTER PRESENTATIONS / PLAKKAATAANBIEDINGS

ABSTRACT NUMBER / ABSTRAKNOMMER: 19

FIRST REPORT OF THE LOCATION OF ATM PROTEIN WITHIN RAT HEART MITOCHONDRIA

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Ataxia-telangiectasia (A-T) is a rare, recessive syndrome where the absence of a single protein, Ataxia Telangiectasia-mutated (ATM), gives rise to a plethora of diseases including, but not limited to, an increase of cardiovascular disease and Type 2 Diabetes (T2D). Underlying this is an increase in cellular oxidative stress, and several studies have suggested that A-T might be a mitochondrial disease. Although the presence of ATM kinase has been confirmed in the nucleus, cytosol and peroxisomes of cells where several functions have been ascribed to it, it has only thus far been associated with mitochondria. This study is the first to show that ATM is located within the inner membrane and matrix of the mitochondria (mitoplast), and consequently implies possible functions with regards to oxidative phosphorylation. We have optimised and established a digitonin-based technique to isolate the outer mitochondrial membrane and intact mitoplasts from rat heart mitochondria. We confirmed the successful isolation of the outer membrane without disruption of the mitoplast with transmission electron microscopy and Western Blot analysis with the outer membrane marker VDAC, and inner membrane marker ANT. Western blot analysis shows that ATM protein kinase is located within the mitoplast and not associated with the outer membrane at all. This is the first report of the location of the protein within mitochondria and opens several avenues for further investigation into the function, import and maintenance of ATM protein kinase within the mitochondria.

ABSTRACT NUMBER / ABSTRAKNOMMER: 20

FIXED-DOSE ANTIRETROVIRAL THERAPY COMBINATION (TDF, FTC AND EFV) EXERTS CARDIOPROTECTION IN A RAT MODEL OF OBESITY

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Introduction: Since the advent of ART, obesity and its related cardiovascular risk has become a potential health burden in HIV-infected populations. In addition, ART has been implicated in the development of cardiovascular disease; however, the effects of ART in obesity remain relatively unknown. Objective: To investigate the cardiometabolic effects of a fixed-dose ART drug combination used as first line therapy in SA (Tenofovir, Emtricitabine and Efavirenz) in high fat diet (HFD)-induced obese rats.Methods: Male Wistar rats were randomly assigned to three groups: Vehicle treated lean control (C), vehicle treated HFD (HF), and ART-treated HFD (HF+). In total, a 16-week feeding programme was followed (C: normal rat chow and HF: HFD ad libitum) with ART administered orally during the last 6 weeks. Endpoints: Biometric (total body mass (TBM), intraperitoneal fat mass (IP-F), liver mass, heart mass), metabolic (fasting glucose, total cholesterol (TC), triglycerides (TG), oxidative stress status (conjugated diene (CD), thiobarbituric acid reactive substance (TBARS)), and regional ischaemia-reperfusion injury of the hearts (functional recovery (total power (Wt), cardiac

output (CO), aortic output (AO)) and infarct size (IS)). Results: HFD successfully induced obesity vs. C (Mean TBM: 437vs.397g; Mean %IP-F: 6vs.4%; Mean heart mass: 1.7vs.1.6%; Mean TGs: 0.4vs.0.2mmol/L; Mean TBARS: 23vs.20µmol/L). HFD rats showed increased IS vs. C (35vs.18%). Mean CD levels decreased in treated HF rats vs untreated (117vs.136mmol/L) and ischaemia-reperfusion data showed improved mean functional recovery (Wt: 4vs.1mW; CO: 19vs.10ml/min; AO: 18vs.2ml/min) and decreased IS (20vs.35%) in treated groups.Discussion and Conclusion: The detrimental effects of the HFD on cardiovascular health was underscored by increased obesity and lipid parameters, oxidative stress and increased infarct size after regional ischaemia. The addition of ART exerted cardioprotection in the hearts of HF animals both in terms of improved function and smaller infarct size.

ABSTRACT NUMBER / ABSTRAKNOMMER:21

INVESTIGATING THE THERAPEUTIC POTENTIAL OF CANNABINOIDS IN THE TREATMENT OF MYOCARDIAL ISCHEMIA/REPERFUSION INJURY

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Fatalities resulting from heart attacks are increasing worldwide. New therapeutic strategies for treatment are required. Cardiomyocytes were isolated from adult male Wistar rats and cultured overnight. These were subjected to simulated ischemia (3 mM 2-deoxyglucose and 10 mM sodium dithionite) for 20 min, followed by 1h reperfusion. Cannabinoids CBD and THC and a cannabinoid agonist HU-210 were respectively administered during ischemia; during reperfusion, and throughout Ischemia/reperfusion. Cardiomyocytes images were captured and analysed using ImageJ/Fiji. Cell survival parameters were assessed, including cell length determination, as a measure of contracture and hypercontracture, whilst cell morphology was assessed to determine cell percentage viability. 1 µm CBD administered during ischemia showed a significant increase in cell length (80.19 ± 5.386 µm vs ischemic control 68.92 ± 2.035 µm, $p \leq 0.05$, n=4). Similarly, 10 nm HU-210 administered during ischemia also resulted in a significantly increased cell length (82.4 ± 8.22 µm vs ischemic control 57.85 ± 2.258 µm, $p \leq 0.05$, n=3). No effect was seen when THC was administered during ischemia, however when 10 µm THC was given during reperfusion, there was a significant increase in cell length (71.14 ± 2.833 µm vs ischemic control 57.98 ± 1.08 µm, $p \leq 0.01$) and increased cell viability (69.8 ± 3.98 % vs ischemic control 17.26 ± 2.33 %, $p \leq 0.0001$, n=4). Similarly, THC administered throughout ischemia/reperfusion significantly increased cell length (88.55 ± 1.41 µm vs ischemic control 65.9 ± 2.10 µm, $p \leq 0.001$) and cell viability (81.55 ± 2.35 % vs ischemic control 42.62 ± 3.45 %, $p \leq 0.001$, n=4). The effect of CBD and HU-210 during ischemia is interesting and could be useful as an early intervention strategy. The cardio-protective result of THC administered at reperfusion is exciting since it represents a clinically relevant time for intervention.

ABSTRACT NUMBER / ABSTRAKNOMMER: 22

FERMENTED AND UNFERMENTED ROOIBOS (ASPALATHUS LINEARIS) MODULATES VASCULAR FUNCTION AND ANTIOXIDANT CAPACITY IN NICOTINE EXPOSED WISTAR RATS

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Introduction and Aims: Nicotine, the addictive substance in tobacco, is implicated in the pathogenesis of atherosclerosis via oxidative stress. Oxidative stress can lead to loss of vascular homeostasis, via reduced nitric oxide (NO) bioavailability, which may cause endothelial dysfunction (ED). Rooibos exerts potent antioxidant and immune-modulating actions and is hence believed to be cardioprotective. This study aimed to investigate whether treatment with rooibos (fermented and unfermented) could ameliorate the harmful effects of nicotine on the vascular system and antioxidant capacity in Wistar rats.Methodology: This study was comprised of an in vivo model of male Wistar rats and ex vivo model of rat aortic ring segments. Nicotine (5 mg/kg bw/day) was administered subcutaneously for 6 weeks and effects on vascular function and antioxidant capacity were determined. The effects of rooibos (fermented or unfermented; 2% administered as drinking fluid) co-treatment with nicotine were assessed to determine if the nicotine-induced effects could be ameliorated. Results: Nicotine elicited pro-contractile responses in aortic rings and decreased superoxide dismutase (SOD) activity and catalase (CAT) activity. Fermented rooibos exerted anti-contractile and pro-relaxation responses in aortic rings and increased SOD and CAT activity in nicotine-treated animals, while unfermented rooibos exerted anti-contractile responses in aortic rings and increased CAT activity in nicotine-treated rats.Conclusion: Fermented and unfermented rooibos have beneficial effects on the vascular system and antioxidant status in nicotine-treated animals, suggesting a possible therapeutic role for rooibos in alleviating nicotine-induced vascular damage in smokers.

ABSTRACT NUMBER / ABSTRAKNOMMER: 23

INVESTIGATING THE EFFECTS OF LIFESTYLE AND DIETARY HABITS ON BODY COMPOSITION AND THE DEVELOPMENT OF TYPE 2 DIABETES IN XHOSA REPRODUCTIVE AGED FEMALES.

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Obesity has become a global epidemic and South Africa has the highest rate (42%) of obesity amongst reproductive aged females in Sub-Saharan Africa. Black South African women are said to have a higher prevalence of obesity which puts them at an increased risk of developing Type 2 Diabetes Mellitus (T2DM). T2DM is a chronic low-grade inflammatory disease with high incidences of morbidity and mortality. A high body mass index (BMI ≥30 kg/m2), excess abdominal fat mass and poor lifestyle habits such as low levels of physical activity are associated with the development of T2DM. As part of our study on stem cell impairment associated with T2DM, we explored these risk factors in 1) healthy lean control (BMI ≤25 kg/m2); 2) non-diabetic obese (BMI ≥30 kg/m2) and 3) obese T2DM (BMI ≥30 kg/m2) Xhosa females (18 to 45 years) within areas surrounding Tygerberg Hospital. Anthropometric data was collected from participants, fasting blood glucose levels were measured and a dual energy x-ray absorptiometry (DXA) scan was done to measure bone mineral density and body composition. Each participant completed a lifestyle and dietary questionnaire. Preliminary results showed that obese females had increased fasting glucose levels, altered body composition (>50% total body fat) and ate more frequent full meals in a day compared to the lean control females. DXA results indicated a significantly greater percentage of fat in the two obese (50-55%) groups compared to the lean control (30-35%) group. The higher BMI and fat mass

furthermore correlated with increased bone strength (bone mineral density). Taken together, our preliminary data is consistent with previous studies which showed a correlation between excess fat mass, high BMI and increased fasting glucose levels. This data forms part of a bigger study looking at risk factors associated with T2DM, and its effects on stem cell behaviour.

ABSTRACT NUMBER / ABSTRAKNOMMER: 24

THE IRON STATUS OF A HEALTHY SOUTH AFRICAN ADULT POPULATION

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INTRODUCTION Iron deficiency can present with or without haematological changes and is a major cause of microcytic anaemia. Children, women of reproductive age and the elderly are at increased risk of developing deficiency. Iron deficiency anaemia is associated with significant morbidity and mortality.METHODS A total of 651 healthy adults >18 years were included in the study. Blood samples were taken for the determination of iron status, haematological and inflammatory parameters. A ferritin level of < 30µg/L was used to define iron deficiency and these subjects were further divided into those with and without anaemia. Diet and menstrual history in females was further investigated.RESULTS The prevalence of anaemia was 12.6% (18.3% in females and 2.9% in males) and iron deficiency was found in 78% of anaemic subjects. Overall, the prevalence of iron deficiency was 39.8% and females had a higher prevalence (56.6%) compared to males (11.2%). Significant ($p < 0.05$) differences were found in concentrations of ferritin, haemoglobin, iron, transferrin, transferrin saturation, MCV and MCH between the groups.CONCLUSION Anaemia is a minor health problem but a large proportion of subjects with iron deficiency do not present with anaemia. The prevalence of iron deficiency was high especially in females.

ABSTRACT NUMBER / ABSTRAKNOMMER: 25

THIAMINE DEFICIENCY NEUROPATHY WITH SENSORY ATAXIA

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Thiamine deficiency neuropathy typically presents acutely or sub acutely with motor weakness predominantly in the lower extremities, associated with distal sensory disturbance associated with numbness, burning pain and paraesthesias. Other uncommon presentations with sensory ataxia and optic neuropathy have been reported. This case report concerns a patient with probable thiamine deficiency associated with significant sensory ataxia suggestive of dorsal root ganglion involvement.HistoryThe patient was a 39 years old HIV negative man with no significant past medical history. He presented with a three-week history of weakness of the limbs and difficulty walking. He had a significant history of alcohol abuse for many years.On examination he was disoriented to time, had fluctuating attention with very poor recall and confabulation. Horizontal nystagmus was present, deep tendon reflexes were absent globally and there was significantly weakness distally in the arms

and globally in the legs. There was patchy sensory loss up to the level of the knees and elbows, with marked loss of joint position sense up to his shoulders and hips. He had marked ataxia, intention tremor and mild piano playing. Special InvestigationsMCV of 110 fl; conduction studies showed an asymmetrical motor sensory neuropathy with non demyelinating features. MRI showed generalised brain atrophy with marked atrophy of the mammillary bodies; there was no evidence of posterior column enhancement.Vitamin B12 levels, copper, anti Ro/La and HbA1c were normal and his paraneoplastic antibody screen was negative. Management The patient was treated with Thiamine and had improvement of power and his joint position sense also improved.ConclusionThe patient was assessed as having thiamine deficiency neuropathy with dorsal root ganglionopathy. Thiamine deficiency neuropathy is associated with a length dependent neuropathy however dorsal root ganglionopathy has been reported.

ABSTRACT NUMBER / ABSTRAKNOMMER: 26

EVALUATION OF GERMLINE WHOLE EXOME SEQUENCING TO DETECT DRIVER MUTATIONS IN BREAST CANCER PREDISPOSITION GENES.

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Background: Next generation sequencing is increasingly being used as a diagnostic tool to guide treatment decisions in oncotherapy. Tumour molecular profiling can detect somatic mutations in cancer gene panels, providing information on tumour sensitivity to targeted therapies. Germline whole exome sequencing (WES) enables comprehensive analysis of the coding sequences of a patient and could reveal driver mutations useful in family screening and cancer risk prediction so that (unaffected) mutation carriers could undergo more intensive cancer screening and management. We analysed 5 breast cancer (BC) patients by germline WES to evaluate how WES may aid in therapeutic decision making.Methods: Five patients with BC were selected with an exome pre-screen algorithm (EPA) which includes a panel of pharmacogenetic variants. All patients gave informed consent and their family history and lifestyle risk factors were recorded. Genomic DNA was extracted and submitted to the DNA sequencing Central Analytical Facility (Stellenbosch) for WES on the Ion Proton. WES reads were mapped to a major allele reference sequence (MARS) and variants called with the Torrent Suite Variant Caller. Resulting variant call format (vcf) files were annotated and analysed with GenetalkTM and filtered against a list of known cancer predisposition genes. Sequencing artefacts were excluded with IGV and true variants confirmed with sanger sequencing.Results: Deleterious protein truncating mutations in the BRCA2 and PALB2 genes, as well as several variants of unknown significance (VUS) in genes associated with cancer, were detected. WES confirmed the CYP2D6 metaboliser status of the patients analysed.Conclusions: WES may be most useful in genetically uncharacterised breast cancer cases or where the pharmacogenetic test performed as part of the EPA cannot explain drug failure/side effects. Germline WES enables identification of genetic risk factors relevant to both cancer development and targeted therapeutic intervention in a single test.

ABSTRACT NUMBER / ABSTRAKNOMMER: 27

HODGKIN LYMPHOMA INCIDENCE AND SUBTYPES AT TYGERBERG ACADEMIC HOSPITAL, WESTERN CAPE, 2003-2014

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OBJECTIVETo describe the trends in Hodgkin Lymphoma incidence by age, gender, subtype and HIV status.BACKGROUND The incidence and subtypes of Hodgkin Lymphoma diagnosed at Tygerberg Academic Hospital has not been previously documented in detail. It has been postulated that HIV and anti-retroviral treatment influence the incidence and subtype of Hodgkin Lymphoma. METHODAll Hodgkin Lymphoma diagnoses made within the National Health Laboratory Service business unit of the Tygerberg Academic Hospital, Faculty of Health Sciences, Stellenbosch University, Western Cape from 2003 to 2014 were reviewed by the Tygerberg Lymphoma Study Group. Hodgkin Lymphoma diagnosis was established and subtyped according to the 2008 WHO classification.RESULTSWe present the total number of Hodgkin Lymphoma cases diagnosed and the trends in incidence by age, gender, subtype and HIV status from 2003 to 2014. CONCLUSIONIt is anticipated the findings from this study will shed light on the incidence and subtypes of Hodgkin Lymphoma in the Western Cape to better inform diagnosis and treatment of future Hodgkin Lymphoma patients.

ABSTRACT NUMBER / ABSTRAKNOMMER: 28

THE IMPACT OF CMV ANTIVIRAL PROPHYLAXIS ON THE NUMBER OF CASES OF KAPOSI SARCOMA AND PATTERN OF MALIGNANCIES IN KIDNEY TRANSPLANT RECIPIENTS AT TYGERBERG ACADEMIC HOSPITAL

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Cytomegalovirus (CMV) prophylaxis was introduced in 2002 for the prevention of post-transplant CMV disease, which had a significant morbidity including renal allograft failure and rarely, death. Given that the majority of post-transplant malignancies are associated with oncogenic viruses, the investigators of this study, postulated that by giving CMV prophylaxis, we may coincidently have reduced oncogenic virus infection in our transplant population. Consequently, we may have reduced the occurrence of post-transplant malignancies, in particular Kaposi sarcoma (KS). A retrospective cohort study was performed, including all patients transplanted at Tygerberg Hospital (TBH) over a 20- year period. This was divided into two 10 year periods - prior to the introduction of CMV prophylaxis and 10 years after. The occurrence of KS and all other malignancies was documented as well as whether patients had received CMV prophylaxis or not. A comparative analysis was then performed to ascertain whether the introduction of CMV prophylaxis had impacted at all on the occurrence and profile of post-transplant malignancies.Overall 29 cases of post-transplant malignancy occurred in 499 recipients during the study period. The proportion of KS cases in the two ten year periods was 45% and 40% respectively ($P<0.7$) and this was found to be the most commonly occurring malignancy in both groups. Skin cancer, both squamous cell carcinoma and basal cell carcinoma, was the second most commonly occurring malignancy. No patient in either group died of malignancy or of complications thereof.The introduction of CMV prophylaxis did not significantly reduce either the number of cases of malignancy or the profile of malignancy in post-transplant patients. KS remained the most commonly occurring malignancy regardless of whether patients had received CMV prophylaxis or not. CMV prophylaxis also failed to show any survival benefit from all-cause mortality.

ABSTRACT NUMBER / ABSTRAKNOMMER: 29

MOLECULAR DIAGNOSIS OF X-LINKED CHRONIC GRANULOMATOUS DISEASE IN A TUBERCULOSIS ENDEMIC REGION

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BackgroundChronic granulomatous disease (CGD) is a genetically heterogeneous disorder characterized by recurrent, life-threatening infections with not only catalase (-) pyogenic bacteria and fungi, but also with mycobacterial species. The disease affects phagocytes and is caused by mutations in any of the five genes (CYBB, CYBA, NCF1, NCF2 and NCF4) that encode components of the nicotinamide adenine dinucleotide phosphatase (NADPH) oxidase or NOX2 enzyme complex. Mutations in these genes inhibit the respiratory burst affecting the generation of superoxide and other reactive oxygen species (ROS) in phagocytic cells. Additionally, excessive inflammatory responses to infections result in dysregulated granuloma formation. In a recent study of 71 CGD patients, 75% presented with adverse effects to BCG vaccination, while 44% had tuberculosis. In tuberculosis endemic countries, such as South Africa, exposure to Mycobacterium tuberculosis is widespread and BCG vaccination is mandatory, placing CGD patients at risk. MethodsSanger sequencing of the CYBB gene was done in five South African individuals diagnosed with X-linked CGD. Additionally, three female siblings of a patient who died of CGD were also screened for novel CYBB mutations.ResultsWe identified mutations in all five affected individuals, which included two pairs of siblings. Three of the mutations identified were novel. CYBB carrier status were confirmed in three female siblings.ConclusionOur findings assist with an accurate molecular diagnosis and improved patient

management of X-linked CGD in South Africa. Carrier testing and prenatal diagnosis for family members of CGD patients are offered.

ABSTRACT NUMBER / ABSTRAKNOMMER: 30

THE EFFECTS OF FIRST LINE AND SECOND LINE ANTIRETROVIRAL DRUGS ON VASCULAR ENDOTHELIAL FUNCTION - A CLINICAL STUDY OF A POPULATION IN WORCESTER.

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Brachial artery flow-mediated dilatation (FMD) serves as a measure of vascular endothelial function in humans. Endothelial dysfunction (ED), an early precursor of cardiovascular diseases, has been linked with HIV and Antiretroviral treatment (ART) in the developed countries. However, very few studies have investigated the association between HIV and the current ART fixed dose of 1st line (tenofovir, emtricitabine and efavirenz) and 2nd-line (lopinavir and ritonavir) used in South Africa. Therefore this study aimed to investigate the effects of the HIV and ART on endothelial function of a population residing in Worcester. Endothelial function was measured (with FMD ultrasound) in the brachial artery in 114 HIV infected participants (ART naïve, n= 31; 1st line ART, n= 50; 2nd line ART, n= 33) and 36 HIV negative individuals. Anthropometric [BMI and waist-hip-ratio (WHR)] and cardiovascular [lipids, blood pressure (BP) and plasma glucose profiles] measures were obtained. FMD was not significantly different amongst the four groups. However, in the HIV negative group WHR ($p < 0.001$) was negatively correlated with FMD. Whereas in the 1st line treatment group, HDL-cholesterol ($p<0.001$) and triglyceride levels ($p= 0.014$) were negatively associated with FMD; and in the 2nd line group, C-reactive protein (CRP) levels ($p= 0.001$) were associated with FMD. Meanwhile the systolic BP ($p= 0.04$) in the treatment naïve group was negatively correlated with the FMD. In conclusion, WHR is an independent predictor for endothelial function and increased inflammation is associated with decreased endothelial function in individuals on 2nd-line ART. Therefore, CRP levels appear to be a predictor for endothelial function in this treatment group.

ABSTRACT NUMBER / ABSTRAKNOMMER: 31

TNFA RS1800629 MODIFIES THE ASSOCIATION BETWEEN PHYSICAL ACTIVITY AND CARDIOVASCULAR RISK IN SOUTH AFRICAN INDIVIDUALS INCLUDED IN A CHRONIC DISEASE SCREENING PROGRAM

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Background: Mounting evidence suggests that a pro-inflammatory promoter polymorphism (rs1800629 G>A) in the tumour necrosis factor alpha (TNFA) gene modifies the relationship between environmental exposures and cardio-metabolic risk as reflected by a change in inflammation status. The aim of the present study was to determine whether TNFA rs1800629 genotype influences the association between physical activity and body mass index (BMI) as well as high-sensitivity C-reactive protein (hs-CRP) levels in a group of South African individuals included in a chronic disease screening program.Methods: Data of 204 study participants (2009-2015) were available in a secure research database. The metabolic syndrome was defined according to the revised International Diabetes Federation's 2006 diagnostic criteria. Biochemical assessment was performed according to standard laboratory protocols. All study participants were typed for the TNFA rs1800629 polymorphism using real-time polymerase chain reaction technology. Results: TNFA rs1800629 genotype modified the relationship between physical activity and body mass index (BMI) as well as hs-CRP levels, with a significant decrease in both associated with regular exercise noted for GG homozygotes ($p<0.05$) while not evident for A-allele carriers ($p>0.10$).Conclusions: The finding that the beneficial effects of regular exercise are limited to TNFA rs1800629 GG homozygotes emphasizes the importance of TNFA genotyping to prioritize the need for tailored therapeutic intervention in A-allele carriers.

ABSTRACT NUMBER / ABSTRAKNOMMER: 32

BODY COMPOSITION OF AFFECTED AND NON-AFFECTED SIDES IN PARALYMPIC ATHLETES WITH CEREBRAL PALSY

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Background: Bone mineral density (BMD), fat free soft tissue mass (FFSTM) and fat mass (FM) have all been observed as altered in individuals with hemiplegic cerebral palsy (CP), compared to healthy able-bodied controls. These alterations include lower BMD and FFSTM and higher FM on the affected side of these individuals. To date, no data are available regarding in-depth body composition of physically active adults with CP.Objective: This study investigated body composition in Paralympic athletes with CP using dual-energy x-ray absorptiometry (DXA).Methods: Bone mineral density (g/cm2), BMD Z scores (standard deviations), fat mass (kg) and fat free soft tissue mass (kg) were measured for the whole body and at the lumbar spine, femoral neck and total hip sites on both non-affected (NA) and affected (A) sides of six athletes with hemiplegic CP, compared to a historical database of age and gender matched controls.Results: There were no differences between NA and A sides with respect to whole body and site specific BMD and BMD Z scores and whole body FM. FFSTM was significantly lower on the A side in both upper and lower limbs (8.81 ± 0.27 kg for A and 10.34 ± 0.82 kg for NA, 15% lower, $P < 0.05$).Conclusion: These data suggest that site specific BMD is unaltered despite differences in FFSTM between A and NA sides in hemiplegic Paralympic athletes with CP. The similarity in BMD and FM between sides lends insight into the physiological adaptation in Paralympic athletes with CP, possibly as a result of long term athletic training. However, differences in FFSTM between the A and NA sides may indicate the residual effects of CP. These

findings have important consequences for rehabilitation as they indicate the potential for positive physiological adaptation as a result of exercise training over long periods of time.

ABSTRACT NUMBER / ABSTRAKNOMMER: 33

DESCRIPTIVE OUTCOMES OF COMPUTER ASSISTED AUSCULTATION DURING A ROUTINE CARDIAC PRE-PARTICIPATION SCREENING IN COLLEGIATE ATHLETES

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The ability to differentiate between athletic associated changes and pathological findings in the heart presents a challenge for clinicians during routine screening. Amongst other tests, cardiac auscultation provides clinicians with valuable diagnostic information on heart murmurs. However, this practice requires skill and extensive clinical experience which makes it difficult to reliably detect abnormalities.PURPOSE: To determine how computer assisted auscultation (CAA) can assist clinicians in the referral of athletes with systolic heart murmurs. METHODS: Athletes from different sporting codes were assessed for heart murmurs during a routine pre-participation evaluation. Participants underwent a clinical examination with a sports physician as well as an independent CAA assessment with a research technician. Based on findings all athletes with suspected pathological (PATH) murmurs were referred to a cardiologist. RESULTS: 131 athletes were screened (104 males, 28 females; mean age 20 ± 2 yrs.). The physician detected 17 murmurs (5 PATH vs.12 physiological) compared to 14 PATH with CAA. Overall, 25 referrals were made for echocardiography (3 PATH from physician, 12 PATH from CAA, 2 PATH both CAA and physician, and 8 for other reasons) which revealed 3 PATH and 22 physiological murmurs. CAA showed a comparable sensitivity to the screening physician concerning the detection of PATH murmurs (3/3 vs. 2/3), but resulted in a higher false discovery rate (11/14 vs. 3/5). CONCLUSION: CAA was able to correctly identify all cases of PATH murmurs despite a number of unnecessary referrals. In comparison the sports physician detected all but one PATH murmur (due to a patent foramen ovale in the septum region) but showed a lower false discovery rate. While not conclusive these findings suggest that CAA may prove to be a useful support tool to aid a clinician's decision making process. However, further investigation is needed to establish reasons for the overestimation of PATH cases.

ABSTRACT NUMBER / ABSTRAKNOMMER: 34

CARDIAC TAMPONADE DUE TO HYPOTHYROIDISM: A CLUSTER OF CASES

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We report on three patients who were seen within a period of 6 months, with a new diagnosis of severe primary hypothyroidism. Pericardial effusion and cardiac tamponade was suspected onclinical and x-ray findings and confirmed with echocardiography in all cases. All had evidence of cardiac tamponade based on echocardiographic criteria and two patients had pulsus paradoxus on

clinicalevaluation. Pericardiocentesis was performed on all. Other causes of pericardial effusions were excluded. Although infrequently described, hypothyroidism needs to be considered in patients presentingwith unexplained large pericardial effusions and cardiac tamponade.

ABSTRACT NUMBER / ABSTRAKNOMMER: 35

STATE OF THE ART WORK UP OF PITUITARY CUSHING'S DISEASE IN SA

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A 50 year old obese woman was referred for evaluation of possible Cushing's syndrome. She had been diagnosed with diabetes mellitus and hypertension in the preceding year and had noted recent unexplained weight gain. She had no history of alcohol abuse or depression and took no medication apart from anti-hypertensives and oral diabetic drugs. On examination she had a BMI of 43kg/m2, thin skin, violaceous striae and facial plethora. She failed to suppress on a suppression test. Twenty-four hour urine cortisol was markedly elevated and she also failed to suppress on prolonged low dose betamethasone testing. ACTH was normal.An overnight high dose betamethasone suppression test was performed, which demonstrated a 89% suppression of serum cortisol, in keeping with pituitary Cushing's disease. MRI revealed 2 vaguely defined pituitary hypodensities (right and left). Dynamic contrast MRI of the pituitary revealed a 5mm hypodensity on the right, suggesting microadenoma.Inferior petrosal sinus (IPS) sampling was performed, to confirm pituitary origin of ACTH. Desmopresin stimulation of ACTH during the procedure has recently been shown to enhance diagnostic accuracy and was performed in this case. We also did simultaneous sampling of prolactin, which has been shown to enhance sensitivity of the test by identifying and correcting for dilutional effects.Our patient had a baseline central to peripheral (C:P) ACTH ratio of 12:1, which doubled on the right with desmopressin stimulation. A C:P prolactin ratio of 5:1 confirmed adequate sampling from the right IPS. The sample from the left IPS catheter surprisingly showed no ACTH gradient to peripheral blood. However, as the prolactin in the left catheter was no different to peripheral blood, this confirmed that the left catheter did not sample blood representative of pituitary drainage.

ABSTRACT NUMBER / ABSTRAKNOMMER: 36

PRIMARY HYPOPHYSITIS: A CASE SERIES

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Primary hypophysitis, previously regarded as a rare inflammatory condition of the pituitary gland, is becoming an increasingly recognized diagnosis. The radiographic and clinical presentation of primary hypophysitis is extremely varied. There are three histopathological variants of primary hypophysitis namely: lymphocytic hypophysitis (the most common variant), granulomatous hypophysitis and xanthomatous hypophysitis (very rare). Clinical presentation can be limited to either anterior or posterior pituitary dysfunction, or may involve both anterior and posterior components of the gland. In addition, lymphocytic hypophysitis which has a predilection in women, often presents in the postpartum period or third trimester of pregnancy. We describe three cases of primary hypophysitis.

The first two cases are both 24 year old women presenting in the postpartum period with anterior hypopituitarism. Magnetic resonance imaging varied considerably, with the first case demonstrating a mass lesion with optic chiasm compression, and the second an empty sella. Surgery was performed in the case with the mass lesion and histology revealed the diagnosis of lymphocytic hypophysitis. The third case is a 50 year old woman who presented with diabetes insipidus and subsequently developed panhypopituitarism. Imaging in this case revealed stalk thickening and an anterior pituitary mass. These three clinical cases demonstrate the varied presentation of primary hypohysitis and how it can mimic other more common forms of pituitary disease. As such, knowledge of this disease entity is important when considering pituitary lesions.

ABSTRACT NUMBER / ABSTRAKNOMMER: 37

UNROOFED CORONARY SINUS DEFECTS (CSD) – THE ADDED VALUE OF MULTIMODALITY IMAGING

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Introduction: CSD are the least common cause of shunting at atrial level. Type 1 Kirklin and Barratt-Boyes defects are particularly rare and are associated with a persistent left sided superior vena cava (PLSVC). We report on 2 cases diagnosed in adulthood.Cases: A 38-year-old female presented in severe right heart failure. Transthoracic echocardiography (TTE) demonstrated a dilated right heart and a low-lying atrial septal defect (ASD) thought to represent an inferior sinus venosus defect. Transoesophageal echocardiogram (TOE) confirmed the secundum septum to be intact without an overriding inferior vena cava. Unroofing of the CS was diagnosed with an associated CS-ASD. Repeat TTE with agitated saline contrast injection (ASI) from the left arm confirmed a PLSVC. Surgical correction was expedited without access to multimodality imaging due to severe heart failure. The entire CS was found to be unroofed with an associated CS-ASD. Without the pre-operative delineation of a possible bridging vein between the PLSVC and right SVC, surgical correction involved complex baffling to redirect bloodflow from the PLSVC to the right atrium (RA) and ASD closure. The second case was that of a 40-year-old female with Turner's syndrome and surgical aortic coarctation repair at age 7. TTE revealed a dilated right heart and CS without recurrent coarctation. ASI via the left arm opacified the CS first, followed by direct spilling into the left and then the RA confirming a PLSVC and unroofed CS. Detailed CMR scan proved the CS to be completely unroofed with a good caliber bridging vein between the PLSVC and right SVC. This allowed for ligation of the PLSVC and patch closure of the CS-ASD.Conclusion: CSD are notoriously challenging to diagnose on TTE. TOE and CMR offer a detailed evaluation of posterior cardiac structures compared to TTE. CMR also provides for accurate planning towards surgical correction.

ABSTRACT NUMBER / ABSTRAKNOMMER: 38

SPECKLE TRACKING ECHOCARDIOGRAPHY IN ACUTE LUPUS MYOCARDITIS: COMPARISON TO CONVENTIONAL ECHOCARDIOGRAPHY

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Objectives:Clinically evident lupus myocarditis (LM) is a serious manifestation of systemic lupus erythematosus (SLE) occurring in 5-10% of patients. No single feature (clinical or imaging) is diagnostic of LM. Current research focuses on the detection of sub-clinical myocardial dysfunction through speckle tracking echocardiography (STE). Research on STE in clinical LM is sparse. We aimed to give a comprehensive description of conventional echocardiography compared to STE in patients with clinically evident LM.Methodology: A retrospective study was done at a tertiary referral center in the Western Cape, South Africa. Adult SLE patients with LM (clinical and echocardiographic evidence of impaired myocardial function attributed to SLE) were included. Echocardiographic images were reanalyzed to include global peak longitudinal strain (GLS) through STE. A poor outcome was defined as LM-related mortality / final left ventricular ejection fraction (LVEF) <40%. A $p<0.05$ was considered statistically significant.Results: 28/457 lupus patients (6.1%) met inclusion criteria: 92.9% were female with a mean age of 28.32 years. Patients had a high SLE disease activity index (≥12) and 85.6% presented in pulmonary oedema. GLS correlated with global (LVEF:$r=-0.808$; $p=0.001$) and regional (WMS:$r=-0.715$; $p<0.001$) left ventricular function. Following treatment, LVEF improved from 35% to 47% ($p=0.023$) and wall motion score (WMS) from 1.88 to 1.5 ($p=0.017$) with no significant improvement in GLS ($p=0.47$). Five patients (17.9%) died due to LM and five had a persistent LVEF<40%. Initial LVEF and GLS were lower in patients with a persistent LVEF<40% ($p=0.046$ and $p=0.095$). Conclusions: This is the largest reported series and the first known on STE in patients with clinical LM. GLS correlated strongly with both regional and global left ventricular function. Both LVEF and GLS were associated with a persistent poor LVEF despite treatment. STE is a non-invasive, cost effective tool with diagnostic and prognostic value in lupus myocarditis.

ABSTRACT NUMBER / ABSTRAKNOMMER: 39

THE INFLUENCE OF SECOND-HAND CIGARETTE SMOKE EXPOSURE DURING CHILDHOOD AND ACTIVE CIGARETTE SMOKING ON CROHN'S DISEASE PHENOTYPE DEFINED BY THE MONTREAL CLASSIFICATION SCHEME IN A WESTERN CAPE POPULATION, SOUTH AFRICA

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BackgroundSmoking may worsen the disease outcomes in patients with Crohn's disease (CD), however the effect of exposure to second-hand cigarette smoke during childhood is unclear. In South Africa, no such literature exists. The aim of this study was to investigate whether disease phenotype, at time of diagnosis of CD, was associated with exposure to second-hand cigarette during childhood

and active cigarette smoking habits. MethodsA cross sectional examination of all consecutive CD patients seen during the period September 2011-January 2013 at 2 large inflammatory bowel disease centers in the Western Cape, South Africa was performed. Data were collected via review of patient case notes, interviewer-administered questionnaire and clinical examination by the attending gastroenterologist. Disease phenotype (behavior and location) was evaluated at time of diagnosis, according to the Montreal Classification scheme. In addition, disease behavior was stratified as 'complicated' or 'uncomplicated', using predefined definitions. Passive cigarette smoke exposure was evaluated during 3 age intervals: 0-5, 6-10, and 11-18 years. ResultsOne hundred and ninety four CD patients were identified. Cigarette smoking during the 6 months prior to, or at time of diagnosis was significantly associated with ileo-colonic (L3) disease (RRR = 3.63; 95%CI, 1.32 - 9.98, p = 0.012) and ileal (L1) disease (RRR = 3.54; 95%CI, 1.06 – 11.83, p = 0.040) compared with colonic disease. In smokers, childhood passive cigarette smoke exposure during the 0-5 years age interval was significantly associated with ileo-colonic CD location (RRR = 21.3; 95%CI, 1.16 – 391.55, p = 0.040). No significant association between smoking habits and disease behavior at diagnosis, whether defined by the Montreal scheme, or stratified as 'complicated' vs 'uncomplicated', was observed. ConclusionSmoking habits were associated with ileo-colonic (L3) and ileal (L1) disease at time of diagnosis in a South African cohort.

ABSTRACT NUMBER / ABSTRAKNOMMER: 40

INTRAVENOUS TPA FOR ACUTE ISCHEMIC STROKE AFTER DELIVERY

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BACKGROUND: The uses of tissue plasminogen activator (tPA) during pregnancy and postpartum has been regarded as relatively contraindicated. To date, very few case reports and limited case series have been published regarding the use of tPA during pregnancy and postpartum.CASE PRESENTATION: A 25-year-old HIV negative lady was admitted to the obstetric unit at 40 weeks gestation with headache and an elevated blood pressure of 178/102. Thirsty five hours later after a normal vaginal delivery, she experienced a sudden onset of left sided hemiparesis. Her National Institutes of Health Stroke Scale (NIHSS) score at presentation was 20. Immediate contrasted computed tomography of the brain revealed right hemispheric swelling with no evidence of infarction or hemorrhage. Intravenous tPA was given as per protocol, however; no immediate clinical improvement was noted. The following day, a non-contrast computed tomography scan revealed a hypodensity in the right tempo-parietal region in the MCA territory and a hypodensity in the external capsule and lentiform nucleus. At day five, the NIHSS score improved from 20 to 8. She was able to ambulate with minimal assistance and was able to continue breastfeeding her infant. At three month follow-up, the patient was neurologically normal without residual deficits.DISCUSSION:The fundamental risks underlying opposition to thrombolytic therapy in the post-partum period is postpartum hemorrhage. There are no other documented cases of intravenous tPA for acute stroke in the postpartum period. However, intra-arterial tPA has been reported in two cases; within fifteen hours after a caesarean section and after six days from delivery. Both cases proceeded successfully without any complications.CONCLUSION: Thrombolytic therapy should not be automatically withheld for potentially disabling stroke during the postpartum period, but the risks and benefits must be carefully assessed on a case-by-case basis.

ABSTRACT NUMBER / ABSTRAKNOMMER: 41

INVESTIGATION OF VITAMIN B12 AND FOLATE STATUS AT A TERTIARY HEALTH CARE CENTRE IN SOUTH AFRICA

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Background: The most common reason for assessing vitamin B12 and folate status is a clinical suspicion of deficiency along with the haematological abnormality of macrocytic anaemia. However, there is often a lack of a precise clinical or haematological picture to guide the appropriate investigation of these patients. Normal haemoglobin or mean cell volumes are often found, masking the need for appropriate investigation. When abnormal haematological parameters are found, it is often a sign of advanced deficiency. In this study we investigated whether patients with haematological findings of macrocytosis and/or anaemia are appropriately investigated for vitamin B12 and folate deficiencies and whether clinicians request metabolite screening to assist with the diagnosis. Methods: This was a retrospective audit of data obtained from the laboratory information system for a six month period at a tertiary academic hospital. Adult patients with macrocytosis, anaemia or both were selected and laboratory records reviewed to determine whether they were investigated for vitamin B12 and folate deficiency.Results: Only 16.2% of patients with macrocytic anaemia, 7.8% of patients with isolated macrocytosis and 6.5% of patients with normocytic anaemia were tested for vitamin B12 and/or folate deficiency. Metabolite assays such as homocysteine and methylmalonic acid were not requested as part of a vitamin status assessment. Conclusions: In our setting, vitamin B12 and folate assessment is a diagnostic dilemma, delaying identification of potentially debilitating disease. Clinicians need to be informed about earlier investigation and of the availability of metabolite screening and their use in establishing early deficiency.

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Theme 5 / Tema 5

Mental Health and Neurosciences/ Geestesgesondheid en Neurowetenskappe

Oral Presentations/ Referate

ABSTRACT NUMBER / ABSTRAKNOMMER: 1

ANTI-DEPRESSANTS FOR TREATMENT OF DEPRESSION IN HIV-INFECTED PEOPLE: A COCHRANE SYSTEMATIC REVIEW

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Background: Rates of major depression among people living with HIV (PLWH) may be at least twice that seen in the general population. Many unique factors contribute to the development of depression and these could influence responses to anti-depressant therapy in this group. There is a need for a high quality systematic review to inform anti-depressant treatment decisions in PLWH.
Objectives: To determine whether antidepressants are effective, and if so which anti-depressants are most effective, in treating depression in PLWH.Search methods:
We searched: the Cochrane Library, Pubmed and Web of Science, ClinicalTrials.gov, WHO Trials Portal, HIV and AIDS clinical trials registries and grey literature.Selection criteria: RCTs comparing anti-depressant to placebo or another antidepressant.Data collection and analysis: Two authors extracted data. We presented outcomes as risk ratios (RR) and mean differences with 95% confidence intervals (CIs). Overall study quality was assessed using GRADE.Main results: There were nine trials enrolling 632 participants conducted between 1994 and 2014. Six studies assessed anti-depressants versus placebo, two trials compared different anti-depressant classes and one trial had three arms comparing two anti-depressant classes with placebo. A meta-analysis of studies comparing SSRI's to placebo showed no difference in HAM-D score (mean difference :-0.31; 95%CI: -2.01-1.39) or CGI-I score (RR: 1.20; 95% CI: 0.94-1.53) after six to twelve weeks of anti-depressant therapy. There were too few trials for comparisons of other anti-depressant classes.Authors' conclusions: There was no evidence that SSRI's were superior to placebo in treating depression in PLWH. This is in contrast to findings from the general population and may indicate that there are other factors which impact on depression in this group or that larger high quality studies are needed to reliably detect a difference between groups. Further trials evaluating the best treatment options for PLWH with depression are needed.

ABSTRACT NUMBER / ABSTRAKNOMMER: 2

INVESTIGATION OF DIFFERENTIAL GENE EXPRESSION IN PARKINSON'S DISEASE PATIENTS: A WHOLE TRANSCRIPTOME APPROACH

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The genetic etiology of Parkinson's disease (PD) is complex and several disease-causing genes and susceptibility factors have been identified. However, progressive dopaminergic neuronal loss resulting in PD pathogenesis is poorly understood and much about PD etiology is unknown. Therefore PD research efforts have turned to next generation sequencing technologies for novel insights and potential candidate genes involved in this complex disease. The focus of this study is to investigate

gene transcription at the level of the entire transcriptome (using the RNA-sequencing) in patients with PD in order to identify differentially expressed biological pathways or processes that may shed light on the pathobiology of PD.Study participants were recruited from the Movement Disorders clinic at Tygerberg Hospital, Cape Town, South Africa and had to meet the UK Parkinson's disease Society Brain Bank Diagnostic Criteria for PD. RNA was isolated from blood samples and RNA-Sequencing was performed on a subset of the participants (20 patients and 20 controls) at NXT-Dx (Gent, Belgium) on the Illumina HiSeq 4000. Bioinformatic analysis was performed using Partek Flow at the Central Analytical Facility, Stellenbosch University. RNA-Seq analysis resulted in a candidate gene list of 132 differentially expressed genes (DEGs) of these four were selected as candidates that could possibly be involved in PD pathology. These four genes include: TXLNG2P, USP9Y, UTY and CEBPA. CEBPA was selected as a gene for further verification as this gene is involved in cell cycle regulation and body weight homeostasis. The investigation of the transcriptome in PD patients may lead to a better understanding of the pathogenic processes underlying this disorder. This approach could reveal candidate genes and biological pathways involved in PD in the South African population.

ABSTRACT NUMBER / ABSTRAKNOMMER: 3

ABNORMAL ACTIVITY RELATED TO REWARD OUTCOME IN THE ORBITO-FRONTAL CORTEX IN PARKINSON'S DISEASE IN THE CONTEXT OF NORMAL AGING

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Parkinson's disease (PD), one of the most common neurodegenerative disorders affecting older adults, is characterised by a loss of dopamine rich neurons in the substantia nigra which not only impacts the motor-system but also goal-directed behavior in the form of depression and apathy. Normal aging, which is also accompanied by a gradual decrease in striatal dopamine, is associated with a decrease in ventral striatal functioning during the anticipation of a conditioned stimulus. Here we aim to investigate the impact of PD on the reward system relative to normal aging.To this end, we performed a monetary incentive delay (MID) task comparing BOLD fMRI activity in 18 PD patients on treatment with an age matched, healthy elderly control group (EC) and a young healthy control (YC) group. Our paradigm assessed both behavior and functional brain activity-associated reward anticipation and reward outcome. This task is known to activate the ventral striatum (VS) during reward anticipation and the orbitofrontal cortex (OFC) during reward outcome. As predicted, both PD and EC groups had significantly less activity in the VS during the anticipation of a reward than the YC group, with the PD group showing the lowest levels of activity on average compared with the other two groups. During reward outcome, despite demonstrating similar brain activity as during neutral outcome, PD patients showed no increases in the OFC as would be expected given their age.PD patients on treatment tend to have an extreme in age-related loss of VS activity during reward anticipation. Patients with PD can be differentiated from normal aging on OFC activity during reward outcome. Longitudinal studies in larger samples are needed to determine if loss in OFC is predictive of the development of PD in the elderly and to investigate treatment effects.

ABSTRACT NUMBER / ABSTRAKNOMMER: 4

F-18 FDG-PET AND fMRI BASED CONNECTIVITY ANALYSIS OF THE POSTERIOR CINGULATE CORTEX/RECUNEUS IN SOCIAL ANXIETY DISORDER

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BACKGROUND: Resting-state functional connectivity (RFC) in SAD has been investigated almost solely using temporal correlations of blood oxygen level dependent (BOLD) signal on functional magnetic resonance imaging (rs-fMRI). Positron emission tomography (PET) remains underutilized in neuroimaging research.
OBJECTIVE: In light of evidence that the default mode network (DMN) may function in social cognition we investigated RFC of the posterior cingulate cortex/precuneus (PCC/Precun) seed, a core node of this network, in SAD using both rs-fMRI and F-18 FDG-PET.
METHODS: SAD participants and healthy controls (HCs) underwent resting-state FDG PET and rs-fMRI. Seed-to-voxel, whole-brain analysis was performed on a PCC/Precun seed using SPM-12. Conjunction analysis was performed to identify shared correlations in the FDG-PET analysis. In the SAD group, a correlation between connectivity and disease severity was investigated. Statistical threshold was set at $p<0.001$ uncorrected (voxel level); $p<0.05$ FDR-corrected at cluster level.
RESULTS: Ten SAD participants and 10 matched HCs were included. On rs-fMRI the SAD group demonstrated reduced connectivity between PCC/Precun and a cluster overlapping left striatum and thalamus. On FDG-PET the SAD group demonstrated reduced connectivity between PCC/Precun and clusters overlapping bilateral insula and right medial orbitofrontal cortex. No significant shared correlations were identified on the conjunction analysis. On rs-fMRI, disease severity was negatively correlated with connectivity between PCC/Precun and a cluster in left temporal pole.
CONCLUSION: Our findings suggest disrupted BOLD connectivity in SAD between PCC/Precun and subcortical structures as well as disrupted metabolic connectivity between this seed and regions implicated in the fear circuit. The negative correlation between SAD disease severity and BOLD connectivity between PCC/Precun and left temporal pole is interesting given the latter region's purported role as a store for social conceptual information. Differences in biological signal origin likely explain differences in RFC defined on fMRI and FDG-PET, highlighting the complementary value of these techniques.

ABSTRACT NUMBER / ABSTRAKNOMMER: 5

INVESTIGATING DIFFERENTIAL EXPRESSION IN PTSD PATIENTS VERSUS CONTROLS: AN RNA-SEQ STUDY

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Post-traumatic stress disorder (PTSD) is a debilitating neuropsychiatric disorder (NPD) that is triggered by life-threatening, traumatic or stressful events which significantly impairs an individual's

normal functioning and their overall quality of life. By use of next-generation RNA-sequencing (RNA-seq), unparalleled information regarding the transcriptome can be gained in order to better understand the molecular workings of this disorder. The study aims to perform RNA-seq using deep sequencing, next-generation technology in order to identify genes that are differentially expressed between PTSD patients and that of trauma-exposed controls.In this case-control study design 40 individuals were selected in total. Trauma-exposed controls consisted of 20 female, mixed ancestry individuals matched against 20 PTSD patients (diagnosed based on the clinician-administered PTSD scale (CAPS) scores). Differentially expressed genes between the groups were identified by RNA-seq that was performed using the Illumina HiSeq 4000 platform at a sequencing depth of 50 million pared end (PE) reads. Thereafter, bioinformatics analyses were performed utilising the Tuxedo Suite to investigate gene expression signatures between the case-control groups. Furthermore, real-time qPCR analysis was performed to determine whether this method would be sufficient in detecting a subset of genes found to be differentially expressed in the RNA-seq analysis.Analyses revealed differentially expressed genes between groups and predicted biologically relevant pathways of these genes, allowing for the identification of potential molecular mechanisms involved in PTSD. This hypothesis-generating study could provide novel insight for early preventative measures and advanced PTSD detection, possibly leading to treatments that delay or prevent the development of PTSD.

ABSTRACT NUMBER / ABSTRAKNOMMER: 6

A NOVEL VARIANT (P.Q2089R) FOUND IN A SOUTH AFRICAN PARKINGSON'S DISEASE PATIENT AFFECTS MITOCHONDRIAL FUNCTION IN TWO CELLULAR MODELS

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Parkinson's disease (PD) is a common progressive neurodegenerative disorder caused by both genetic and environmental factors. Mitochondrial dysfunction and oxidative stress have been linked to neurodegeneration although the exact etiology of PD has yet to be fully characterized. The most common PD-causing mutation (G2019S) is located in the kinase domain of LRRK2, a gene encoding a multi-domain, multifunction protein that has been shown to be involved in mitochondrial fission/fusion dynamics. A novel variant (Q2089R) was recently identified in the kinase domain of LRRK2 downstream of G2019S.In this study we investigated the effect of the G2019S mutation and the Q2089R variant on mitochondrial function in two different cellular models (HEK293 cells and patient-derived fibroblasts). HEK293 cells were transfected with mammalian expression vectors containing full-length G2019S, Q2089R, or wild type (WT) LRRK2. Dermal fibroblasts were obtained from individuals carrying the G2019S mutation, Q2089R variant or WT LRRK2. Mitochondrial membrane potential (MMP) was measured using the JC-1 cationic dye and flow cytometric analysis. Changes in cellular bioenergetics were monitored by measuring oxygen consumption and extracellular acidification rates in real-time on a Seahorse Analyzer.It was found that G2019S- and Q2089R-transfected HEK293 cells decreased MMP under basal conditions compared to WT cells. Conversely, no difference was observed for fibroblasts under basal conditions. However, when cellular stress was induced, a significant decrease in MMP was observed for both the G2019S and Q2089R fibroblasts. In addition, Q2089R decreased mitochondrial respiration rates in HEK293 cells and fibroblasts compared to WT LRRK2.In conclusion, G2019S and Q2089R were found to decrease MMP in HEK293 cells and patient fibroblasts, and Q2089R had a negative effect on mitochondrial respiration. These findings

provide further evidence for LRRK2's involvement in PD pathogenesis through a mitochondrial dysfunction pathway which has important implications for the design of future therapeutic interventions.

ABSTRACT NUMBER / ABSTRAKNOMMER: 7

INVESTIGATION OF MITOCHONDRIAL DYSFUNCTION IN PARKIN –MUTANT FIBROBLASTS FROM PARKINSON'S DISEASE PATIENTS

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Mutations in the parkin gene are the most common genetic cause of early-onset Parkinson's disease (PD). Parkin, an E3 ubiquitin ligase, has been implicated in respiratory chain function, mitophagy and mitochondrial dynamics. This is supported by studies in animal models which demonstrate marked mitochondrial abnormalities in the absence of functional parkin. Hence, mitochondrial dysfunction is thought to play an important role in the pathophysiology of PD.Human cellular models with parkin mutations are particularly valuable for investigating the mitochondrial functions of parkin. However, published results of such investigations of patient-derived parkin-mutant fibroblasts have been inconsistent. This study aimed to functionally compare parkin-mutant fibroblasts from PD patients with wild-type control fibroblasts using a variety of assays to gain a better understanding of the role of mitochondrial dysfunction in PD.To this end, dermal fibroblasts were obtained from three PD patients with homozygous whole exon deletions in parkin and three unaffected controls. Assays of mitochondrial respiration, mitochondrial network integrity, mitochondrial membrane potential and cell growth were performed as informative markers of mitochondrial function. Surprisingly, it was found that mitochondrial respiratory rates were markedly higher in the parkin-mutant fibroblasts compared to control fibroblasts ($p = 0.0093$), while exhibiting more fragmented mitochondrial networks ($p = 0.0304$). Moreover, cell growth of the parkin-mutant fibroblasts was significantly higher than that of controls ($p = 0.0001$), while exhibiting a greater inhibition of cell growth in the presence of the mitochondrial toxin CCCP ($p=0.0013$). These unanticipated findings are suggestive of a compensatory mechanism to preserve mitochondrial function and quality control in the absence of parkin in fibroblasts, which warrants further investigation. The results of this study demonstrate that patient-derived fibroblasts allow important insights into the mechanisms underlying PD. Furthermore, the interesting compensatory effect observed here may have important implications for therapeutic strategies for PD patients.

ABSTRACT NUMBER / ABSTRAKNOMMER: 8

REWARD IN GAMVLING DISORDER: PRELIMINARY FINDINGS OF NEUROCOGNITIVE ASSESSMENTS

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Background: Gambling disorder (GD), affects 0.4 to 1.6% of adults worldwide and up to 3% of South Africans. Evidence from neuroimaging studies suggest functional abnormalities involved in decision-making and reward processing. However, supporting evidence from neurocognitive assessments has been mixed. This may be due to the variety of measures and different reward conditions studied across settings. Here we aimed to analyse preliminary data from functional magnetic resonance imaging (fMRI) observations and neurocognitive assessments investigating both real (monetary) and imaginary incentive conditions.
Methods: Six GD patients and six healthy age- and gender-matched controls completed the Monetary Incentive Delay task (MID) during fMRI scanning, and computerised version of the Cambridge Gambling Task (CGT) from the Cambridge Neuropsychological Test Automated Battery (CANTAB). These measures were used to assess reward, reward anticipation and risk-taking behaviour.
Results: As expected, there were no significant differences between the two groups in total reward earnings on the MID task. Both groups displayed similar decreased trends in response time between neutral and reward cues. GD patients also reported with lower response time in both reward and neutral task trials compared to controls, but group differences was not statistically significant. On the CGT, GD patients displayed significantly longer deliberation time ($p = .018$) compared to controls, but no significant group differences were observed for other outcome measures. Conclusion: These preliminary findings suggest that GD patients display decreased reaction time in response to monetary reward cues, but not in imaginary reward conditions. Furthermore, evidence suggests GD patients may present with impaired decision-making abilities, but that these may only be present in specific conditions of reward.

ABSTRACT NUMBER / ABSTRAKNOMMER: 9

AN EXPLORATION OF PATIENT'S EXPERIENCES OF THE VALUE OF AN OCCUPATIONAL THERAPY OUTPATIENT CRAFT GROUP

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Mental Health is a discipline within the health sciences that has compelled many professionals to explore it. According to the World Health Organisation, mental health is defined as a state of well-being whereby the individual realizes their own potential and are able to contribute to society. Poor mental health compromises a person's well-being and the ability to realize the individual's potential. It may also limit the person's ability to work productively and contribute to society.Support groups held for patients post discharge from acute treatment offer an opportunity for mental health consumers to receive ongoing therapeutic intervention while living at home.Standardized outcome measures in occupational therapy are available for in-patient groups. However, they measure the impact of interventions offered to in-patients.Outpatient interventions differ in quantity and quality to inpatient groups. A different outcome measure is therefore needed to measure the impact on occupational performance for outpatient mental health consumers attending outpatient occupational therapy craft groups.In the absence of an outcome measure for outpatient occupational therapy group programmes, working towards the development of such a measure is important. The first step towards achieving this is to be able to use a research process to identify what the constructs to be measured could be. This study aims to contribute towards the development of such an outcome measure by exploring and describing the experiences of mental health consumers attending an

outpatient occupational therapy group at a local public health psychiatric institution. An Appreciative Inquiry qualitative design will be used to explore the value of an outpatient occupational therapy craft group.This study aims to contribute towards the exploration of the value of outpatient craft groups of mental health hospitals across the province. This way empirical evidence will support patient anecdotes of enhanced meaning and participation in occupational therapy craft groups.

ABSTRACT NUMBER / ABSTRAKNOMMER: 10

EFFECT OF EXERCISE ON DEPRESSION, ANXIETY AND FITNESS MEASURES IN PATIENTS WITH PREVIOUS METHAMPHETAMINE DEPENDANCE_REVIEW

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Background: Methamphetamine is a highly addictive psychostimulant substance that causes various physiological effects in the body and is used by approximately 52 million people worldwide. In the short-term methamphetamine use improves productivity, attention-span, energy levels and even reduces anxiety. In contrast, however, chronic methamphetamine use causes a decrease in dopamine stores in the brain and damages the ability of dopamine and serotonin to bind to their terminals. Recent evidence shows that the damage to the brain of previous methamphetamine users may actually be reversible. There has been no systematic review conducted recently to determine the influence of including an exercise program in the management of methamphetamine dependents who suffer from depression and anxiety or who are prone to depression and anxiety. Objective: The aim of this systematic review was to identify, clinically appraise and evaluate available evidence for the effectiveness of exercise on decreasing depression and anxiety symptoms as well as fitness measures in methamphetamine users compared to CBT, education and/or standard care. Methodology: Seven computerized bibliographic databases accessed through the Stellenbosch University library services was searched, namely Scopus, Cochrane Library, Pubmed, PEDro, CINAHL, MEDLINE and ScienceDirect. The following search terms were used: exercise AND methamphetamine AND fitness measures; exercise AND methamphetamine AND depression AND anxiety. Articles had to meet specific criteria to be included or excluded from their search results in this review. The PEDro scale was used to appraise the methodological quality of each study. Data was extracted from the relevant articles using the adapted JBI data extraction form and included the following categories: reference, type of study, participants (including baseline characteristics of participants), outcome measures, interventions (for both the treatment and the control group), results, as well as post-intervention clinical status and the implications thereof. Revman was used to create Forest Plots which were used to graphically present the data. Where forest plots were not applicable the data was presented in a narrative form. Results: The three studies included in this review were two RCT's and one pilot study which scored an average of 6,66/11 on the PEDro scale. The pooled results showed that exercise resulted in significantly lower anxiety- and depression scores. Balance showed significant improvement in the Tai Chi group. Moreover, right hand grip, left hand grip, one-leg stand with eyes closed and blood pressure showed significant improvements in both the exercise and education groups. However, heart rate, BMI ($p=0.00001$) and body fat levels ($p=0.008$) did not show any significant differences between the intervention and control groups. Conclusion: There is level I and III evidence suggesting that exercise has shown to have an effect in reducing anxiety and depression in previous methamphetamine users and in addition improving some fitness measures. Further research is recommended using larger sample sizes and focusing on enhancing post

methamphetamine dependence rehabilitation in particular the role of physiotherapy in the rehabilitation process.

ABSTRACT NUMBER / ABSTRAKNOMMER: 11

PROSPECTIVE INTER-EPISODAL MOOD MONITORING IN PATIENTS WITH BIPOLAR DISORDER

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ObjectivesThe main objective of this preliminary study was to assess the feasibility of inter-episodal telephonic mood monitoring in patients with bipolar or unipolar mood disorders and anxiety disorders recruited from a psychiatric inpatient setting. Secondary objectives included gathering data on longitudinal mood trajectories and assessing patient acceptance of telephonic mood monitoring. MethodologyInpatients with a primary mood or anxiety disorder were recruited at pre-discharge. At the intake assessment, a demographic questionnaire, the Life Events Checklist, and the Childhood Trauma Questionnaire, were completed. Participants were assessed by weekly telephonic assessments with the Altman Self-Rating Mania Scale and the Quick Inventory of Depressive Symptomology-16 over 26 weeks, and units of alcohol consumed and life events were additionally recorded. Semi-structured interviews were conducted once with every participant.ResultsAt the time of analysis, 28 participants [78.6% female; mean age of 38.46 years (SD=9.074); 57.1% unemployed] had reached the Week 16 point. Male participants [Chi-square(df=1)=4.43; p=0.035] and participants with known substance use problems [Chi-square(df=1)=4.42; p=0.035] were more likely to discontinue mood monitoring. Mean depression scores (QIDS-SR) remained in the clinically significant range over the entire 16 week period [F(15, 191)=3.32; p=0.00], while manic [F(15, 245)=0.48; p = 0.94] and mixed symptoms did not. Trauma exposure did not significantly influence participation. The main factor limiting mood monitoring was maintaining reliable telephonic communication with participants. Participants requested more illness advice, for researchers to serve as liaisons with psychiatrists and hospitals, and a shorter period of assessment. ConclusionDepression and suicidality characterize the presentation of patients with bipolar, unipolar, and anxiety disorders post-discharge. Telephonic mood monitoring may be useful for tracking illness course and adherence, encouraging medication and outpatient visit adherence, and identifying and managing early warning signs of relapse. Reliable communication proved challenging in this setting.

POSTERS/PLAKKATE

ABSTRACT NUMBER / ABSTRAKNOMMER: 12

TRAUMA TYPE AS A RISK FACTOR FOR PTSD IN A REFERRED CLINIC SAMPLE OF ADOLESCENTS.

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BACKGROUND: Traumatic experiences that are varied in type and severity may lead to the development of Posttraumatic Stress Disorder (PTSD). Some trauma types present a higher risk for PTSD owing to their nature and impact on growth and functioning. Few studies have investigated the risk of developing PTSD according to trauma type in clinic referred adolescents in low- and middle-income countries. The aim of the study was to determine the risk for PTSD based on Kiddie Schedule for Affective Disorders and Schizophrenia (KSADS) index-trauma type and to stratify risk by gender. METHODS: Consecutively referred adolescents to a research clinic in Cape Town, South Africa (n=216), exposed to at least one DSM-IV qualifying trauma, were assessed for PTSD using a clinician administered interview. Risk was determined using logistical regression analysis. Group differences in PTSD associated with specific trauma types were determined using chi-square tests and cross-tabulation and the sample was stratified according to gender. RESULTS: The prevalence of PTSD was 48.1% in this sample. PTSD prevalence was highest in the groups with the following index trauma: sexual abuse (65%), witnessing a violent crime (61.9%) and being a victim of a violent crime (60.7%). PTSD prevalence was lowest among participants who identified physical abuse (18.2%), domestic violence (27.8%) and being confronted with traumatic news (20.8%) as index trauma. Witnessing a violent crime, being a victim of a violent crime and sexual abuse were significant predictors of PTSD. Females were more likely to meet diagnostic criteria for PTSD in the aforementioned analysis, however, gender was not a significant predictor of PTSD. CONCLUSION: The findings underscore the importance of timely identification of trauma, particularly, sexual abuse and violence. Longitudinal tracking of adolescents exposed to different trauma types may identify those in need of treatment and enhance our understanding of the lasting impact of trauma.

ABSTRACT NUMBER / ABSTRAKNOMMER: 13

EXPERIENCES OF ADOLESCENTS RECEIVING A PSYCHOTHERAPEUTIC TASK SHIFTING INTERVENTION FOR PTSD IN A COMMUNITY SETTING.

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Objectives: PTSD is a prevalent diagnosis in South African adolescents exposed to physical and sexual violence. While cognitive-behavioural approaches have an evidence base for their effectiveness, identifying feasible treatments to mitigate the scarcity of psychologists in South Africa is an imperative. This study is nested within an ongoing RCT of prolonged exposure therapy for adolescents (PE-A) versus supportive counselling (SC) provided by supervised nursing students (diploma in advanced psychiatry) in a community based setting. We describe the experiences of adolescents who completed the task-shifting intervention.Methodology: Adolescents who had completed the intervention in 2014 were purposively recruited telephonically and shared their experiences through semi-structured in-depth interviews and focus groups (either PE-A or SC). Recorded interviews were doubly transcribed and thematic content analysis was applied using Atlas.ti software. Research: 10 participants consented to an interview, and 8 of those volunteered for the focus group. Data from 12 transcripts (10 interviews, 2 focus groups) were categorized into six themes representing 35 codes. Adolescents reported that the intervention was beneficial to them and through self-report provided powerful examples of behavioural change. It was evident from the narratives of adolescents that the community did not fully grasp the impact of PTSD and that there were issues of mistrust (even traditional medical facilities) around providing safety and relief. Central

to the success of the intervention was the therapeutic alliance with both the nurse-therapist and fieldworkers. Providing the intervention in a community setting was not without practical challenges. Barriers to involvement were identified, however participants overwhelmingly reported that there was a great need for this intervention and that they were motivated for the study to continue despite the high risk of encountering stigma.Conclusion: This report illustrates the desperation, resilience and creativity that adolescents utilize to get the help they need when delivered by non-specialists.

ABSTRACT NUMBER / ABSTRAKNOMMER: 14

NEUROCOGNITIVE PERFORMANCE IN ADOLESCENTS WITH HIGH AND LOW LEVELS OF BOTH ANXIETY PRONENESS AND CHILDHOOD TRAUMA.

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Both childhood trauma and elevated levels of anxiety-related temperamental traits (characterized as anxiety proneness) are associated with the development of anxiety disorders in youth. No studies to date have examined important aspects of cognition, including memory, learning and executive functioning, in healthy adolescents with high and low levels of childhood maltreatment/trauma and high and low levels of anxiety-related temperamental traits. We aimed to investigate the main and interaction effects of childhood maltreatment/trauma and anxiety proneness in healthy, non-clinical adolescents. 111 healthy adolescents participated in the study of which 104 underwent both a neuropsychiatric and neurocognitive assessment. Two-way ANOVAs and ANCOVAs assessed whether childhood maltreatment/trauma and anxiety proneness, individually or in combination, had any significant effect on neurocognitive functioning. The majority of the sample was African (77.5%) and female (74%) with an average age of 17 years (SD = 0.92, range: 15-18 years). There was no significant effect of anxiety proneness on cognition, however, there was a significant effect of childhood trauma on executive functioning. Significant interaction effects were evident for IQ, visual memory and visual perceptual and conceptual abilities. Executive functioning deficits are evident in adolescents with high levels of childhood trauma, whilst the combined effect of childhood trauma and anxiety proneness has a significant interaction with IQ, visual memory and visual perceptual and conceptual abilities. These findings provide support for the negative effect of childhood maltreatment on executive functioning in adolescents and underscores the importance of assessing for neurocognitive functioning in adolescents with maltreatment histories, regardless of their mental health status. Additionally, results highlight the important contribution that both childhood trauma and anxiety proneness have on significant aspects of neurocognition in healthy, non-clinical adolescents.

ABSTRACT NUMBER / ABSTRAKNOMMER: 15

PROFESSIONALS' AND PATIENTS' PERSPECTIVES TOWARDS DISCLOSING INCIDENTAL FINDINGS OF PLEIOTROPIC RESULTS: PRELIMINARY FINDINGS FROM AN ONLINE SURVEY DISTRIBUTED TO STUDENTS.

Jacqui Steadman (Stellenbosch University - Psychiatry)

Background: Genetics research, specifically pleiotropic research, inherently potentiates incidental findings (IFs), leaving researchers and clinicians in need of direction regarding the disclosure of such information.Aims: This study aimed to identify opinions towards IFs by exploring which factors affect

the disclosure of IFs, which types of IFs should be returned, and who should return these findings.Method: A cross-sectional electronic survey was emailed to and completed anonymously by 153 students from the Faculty of Medicine and Health Sciences at Stellenbosch University and the University of Cape Town.Preliminary findings: 83.6% of respondents agreed that participants should be given the right to choose whether IFs were returned and that a genetic counsellor (52.1%) was most responsible for disclosure. The most important factors influencing decisions to disclose IFs included the moral obligation to disclose life-saving information (71.9%), the chance that treatable disorders could be identified (71.1%), and participants' right to receive information (60.1%). In terms of IFs associated with an adult-onset disease that was clinically actionable, 69.3% of participants strongly agreed that they would want to be informed of this type of finding in themselves, 67.3% would want to be informed of this finding in their child, 62.8% would disclose to adult patients, and 54.3 % to minor patients. Opinions toward the disclosure of findings associated with an adult onset disease that was not clinically actionable differed slightly, as 30.1% of participants strongly agreed that they wanted to be informed of such findings in themselves, 35.5% wanted to receive this information when it concerned their child, 28.8% would disclose to an adult patient, and 22.9% would disclose to a minor patient. Conclusion: A majority of the students believed that participants have the right to receive certain IF results and that the disclosure thereof is influenced by the clinical actionability of these findings.

ABSTRACT NUMBER / ABSTRAKNOMMER: 16

CROSS-CULTURAL ASSESSMENT OF HIV-ASSOCIATED NEUROCOGNITIVE IMPAIRMENT USING THE KAUFMAN ASSESSMENT BATTERY FOR CHILDREN: A SYSTEMATIC REVIEW.

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Despite improved efficacy of, and access to, combination antiretroviral therapy (cART), HIV-associated neurocognitive impairments (HANI) remain prevalent. Neuropsychological tests that detect HANI in children can help clinicians formulate treatment plans. The Kaufman Assessment Battery for Children (KABC), although developed and standardized in the United States, is used frequently in many countries, to assess paediatric performance within specific cognitive domains. This study investigates the cross-cultural utility of the original KABC and KABC-II, in identifying HANI in children.Keywords/MeSH terms were entered into several databases. Reviewers independently evaluated the retrieved abstracts and manuscripts. Studies eligible for inclusion in the review were those that (a) used the KABC/KABC-II to assess cognitive function in children aged 2-18 years, (b) featured a definition of HANI (e.g., >2SD below the mean) or compared the performance of HIV+ and HIV- groups, and (c) used a sample excluded from US census on which the instruments were normed. The reviewers evaluated the methodological quality of studies independently.Eight studies (seven from Africa and one UK-based) comprised the sample of the systematic review. Study samples included cART-naïve or clinically stable cART-treated children. All studies reported some form of cognitive impairment in HIV-infected children. Five reported significant differences on KABC subtests tapping simultaneous processing; 4 reported the same for sequential processing; 3 did so for learning; and 3 did so for a mental processing index. Three studies highlighted HIV-associated impairments in nonverbal abilities and in planning. Methodological shortcomings included reporting and selection biases.This systematic review provides evidence for the cross-cultural utility of the KABC (particularly the simultaneous processing subtests) in detecting HANI in children (including those who are clinically stable). Although the current results suggest there is justification for using the KABC in

Africa, further investigation is required to explore the instrument's utility in other regions where HIV is prevalent.

ABSTRACT NUMBER / ABSTRAKNOMMER: 17

CHANGES IN COGNITIVE FUNCTION IN WOMEN WITH HIV INFECTION AND EARLY LIFE STRESS.

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Introduction: HIV is frequently associated with deficits in brain function, including memory, psychomotor speed, executive function, and attention. Early life stress (ELS) has also been shown to have a direct influence on neurocognitive performance. However, little is known about the combined impact of ELS and HIV on neurocognitive function over time. The aim of the present study was to follow a cohort of affected women, allowing us to assess the effects of HIV and childhood trauma on cognition and the change in cognition over time.
Method: A battery of neurocognitive tests was administered to 117 women at baseline and then a year later. The sample included a total of 67 HIV+ and 50 HIV– women, 71 with ELS and 46 without ELS. Controlling for age, education and antiretroviral therapy (ART) at baseline and 12-month follow-up, raw scores were compared across groups using a repeated measures Analysis of Covariance (ANCOVA).
Results: More women were on ART at follow-up compared to baseline. Results revealed a significant combined HIV and childhood trauma effect over time on the Wisconsin Card Sorting Test ($p = 0.003$) and Category Fluency Test ($p = 0.006$). A significant individual HIV effect over time was evident on the WAIS-III Digit Symbol Test ($p = 0.03$) and the Controlled Oral Word Association Test ($p = 0.003$).
Conclusion: Findings suggest better performance in abstract reasoning, speed of information processing and verbal fluency over time. While all groups showed improvements that may correspond to practice effects, effects of HIV and childhood trauma remained evident at 12-month follow-up despite greater ART uptake and improved HIV disease status. This is the first study to assess the combined impact of HIV and trauma on neurocognitive function over time in an all-female cohort with more advanced disease.

ABSTRACT NUMBER / ABSTRAKNOMMER: 18

PUBLICATION OF RANDOMISED CLINICAL TRIALS IN PTSD: A SYSTEMATIC REVIEW.

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Objectives: In order to investigate publication bias, this study aims to evaluate the publication rate of drug and non-drug trials in posttraumatic stress disorder (PTSD) that are publicly registered and investigate the potential reasons for delayed or non-publication.Methodology: Trials with a recruitment status of closed and completed were identified via the U.S. National Institutes of Health clinical trials registry (www.clinicaltrials.gov), the European Union Clinical Trials Register (https://www.clinicaltrialsregister.eu/) and the WHO International Clinical Trials Registry Platform http://apps.who.int/trialsearch/Default.aspx). These were downloaded on 15 January 2015 and a systematic search for related publications, in peer reviewed journals, and elsewhere was performed.

If publications were not found trial investigators were e-mailed. Results: Once duplicate studies and studies that did not meet our criteria were excluded a total of 442 (of 1977) studies remained. We were able to obtain peer reviewed journal articles for 56.6%, and other reports for 8.4% before end 2015. Of the published data, 71.8% had positive outcomes, 18.9% negative outcomes and 9.3% had mixed outcomes. Data on the reasons for non-publication, funding source, sample size, study aims, and time to publication are still in the process of being analysed.Conclusion: Preliminary data suggests that many registered and completed trials for PTSD are not published in peer reviewed journals. In the interest of transparency and good evidence based decision-making, it is vital for all findings to be made available. As such, reporting on the reasons for non-publication is essential, and we intend to further analyse and present these.

ABSTRACT NUMBER / ABSTRAKNOMMER: 19

A PRELIMINARY INVESTIGATION INTO THE RELATIONSHIP BETWEEN SELF-PERCEIVED STRESS AND HEALTH AND FUNCTIONING IN SHARED ROOTS STUDY PARTICIPANTS.

Leigh van den Heuvel (Stellenbosch University - Psychiatry), Soraya Seedat (Stellenbosch University - Psychiatry)

Objectives - Chronic stress is known to contribute to various negative health sequelae. We aimed to investigate how self-perceived stress (SPS) influenced objective and subjective measures of health and functioning in SHARED ROOTS study participants. SHARED ROOTS is an ongoing cross-sectional study evaluating the factors that to contribute to increased risk for cardiovascular disease, as defined by the metabolic syndrome, in neuropsychiatric disorders.Methodology – We utilised the Perceived Stress Scale (PSS) to evaluate SPS in a sample of three hundred and seventy-eight participants of mixed ancestry. A medical history questionnaire and physical and laboratory measurements were utilised as measures of physical health status and subjective health status was based on self-reported general health. The M.I.N.I. International Neuropsychiatric Interview (M.I.N.I) was utilised to diagnose current Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) psychiatric disorders. Subjective functioning was determined using the Sheehan Disability Scale (SDS) and objective functioning with the Social and Occupational Functioning Assessment Scale (SOFAS). Factors that remained significant ($p<0.05$) on multivariate analysis are reported.Results –SPS varied significantly according to age and gender, with females and younger individuals reporting higher levels of SPS. Individuals with psychiatric disorders reported significantly higher levels of SPS. Objective measures of physical health, including metabolic syndrome diagnosis, did not correlate with SPS, although individuals with SPS were more likely to view their health as poor. Impairments in objective and subjective functioning correlated with higher SPS.Conclusion – We did not observe a clear relationship between current SPS and objective physical health status. Higher levels of SPS were however reported in individuals with psychiatric disorders and SPS negatively impacted functioning.

ABSTRACT NUMBER / ABSTRAKNOMMER: 20

A PILOT STUDY TO EVALUATE A TARGETED RESEQUENCING APPROACH FOR IDENTIFICATION OF PATHOGENIC MUTATIONS IN SOUTH AFRICAN PARKINSON'S DISEASE PATIENTS.

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Background: Parkinson's disease (PD) is a neurodegenerative disease that affects 1-2% of individuals over the age of 60 years. PD-causing mutations in genes such as PARK2, PINK1, DJ-1, ATP13A2, SNCA, LRRK2, VPS35, EIF4G1 and CHCHD2 have been identified and studied predominantly in European, North American, North African Arab and Asian populations. Little information exists on the genetics of PD in sub-Saharan Africa. Hence, this study used a high-throughput next generation sequencing approach to screen for pathogenic mutations in candidates gene in South African PD patients.Methods: For this pilot study, genomic DNA was extracted from seven blood samples and one saliva sample. The quality of the DNA was assessed using the Agilent Bioanalyzer 2100 and gel electrophoresis. The Ion AmpliSeq™ Neurological Research Panel (Thermo Fisher Scientific) comprising 751 genes was used and sequencing was done on an Ion-Torrent personal genome machine (PGM). Ion Reporter software was used for data analysis.Results: We observed a high number of single nucleotide variations (SNVs) in all of the samples: - (2672, 2681, and 2808) in white individuals and (3146, 3525, 3634, 3668, and 4339) in mixed ancestry and black individuals. In the known PD genes, a total of 125 exonic SNVs were found. 84 in the 4 black and 41 in the 3 white individuals. Of these unique SNVs, 113 were common SNPs, 9 were rare variants (MAF<0.01) while 3 variants were novel variants that were specific to mixed ancestry and black individuals but their functional significance in PD needs to be elucidated.Conclusion: This pilot study revealed that the Ion Ampliseq Neurological panel is a time and cost-effective method for the screening of sequence variants in DNA extracted from both blood and saliva samples. Black individuals appear to have more sequence variations in the 751 genes studied here.

ABSTRACT NUMBER / ABSTRAKNOMMER: 21

HIPPOCAMPAL AND AMYGDALA VOLUMES IN ADULTS WITH POSTTRAUMATIC STRESS DISORDER SECONDARY TO CHILDHOOD ABUSE OR MALTREATMENT: A SYSTEMATIC REVIEW.

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Posttraumatic Stress Disorder (PTSD) is a debilitating condition that, by virtue of its symptom profile and chronicity, causes substantial work impairment and social dysfunction. Childhood abuse or childhood maltreatment (defined as neglect, physical abuse, sexual abuse and emotional maltreatment during childhood and adolescence) has deleterious morphological effects on the developing brain. This review and meta-analysis draws on studies documenting the effects of childhood trauma on brain volumetric changes, specifically the hippocampus and amygdala, in adults with PTSD. We systematically reviewed differences in hippocampal and amygdala volumes between adults with childhood maltreatment-related posttraumatic stress disorder (PTSD) and healthy controls. Using the terms "adults", "MRI", "magnetic resonance imaging", with "posttraumatic stress disorder" "PTSD", "child abuse", and "child maltreatment", we conducted searches on several electronic databases. We identified 10 studies that met our inclusion criteria; 7 of which were included in a meta-analysis of hippocampal volume and 4 that were included in a meta-analysis of amygdala volume. Mean hippocampal and amygdala volumes were used to determine effect sizes. We found bilateral reduction of both the hippocampus and amygdala in the PTSD group compared to healthy controls, with effect sizes of -0.66 & -0.67 for the left and right hippocampus and -1.08 and -

1.15 for the left and right amygdala, respectively . The relatively few studies available for analysis is a limitation. Additionally, gender diverse MRI studies in PTSD are needed to determine whether gender plays a significant role in the hippocampal effects associated with childhood-onset trauma.

ABSTRACT NUMBER / ABSTRAKNOMMER: 22

DIFFERENCES IN QUALITY OF LIFE AND RESILIENCE IN PARAMEDIC TRAINEES BETWEEN ENROLMENT DATE AND THREE MONTHS FOLLOWING EXPOSURE TO WORK RELATED TRAUMA.

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INTRODUCTION: Emergency care workers are at higher occupational risk of developing mental- and physical health related difficulties due to repeated exposure to traumatic events. Variables associated with physical - and mental health outcomes include quality of life and resilience which may be negatively affected. Traumatic growth may directly impact resilience and, in turn, improve quality of life.
METHOD: Paramedic trainees (n=56) were recruited from a local university in South Africa and completed the Quality of Life and Satisfaction Questionnaire (QLESQ) and the Connor-Davidson Resilience Scale (CD-RISC). Change in quality of life (physical, emotional, social, leisure, work, household, classwork and general activities) and resilience (competence, tolerance, change, control and spirituality) between baseline and three months was assessed. The relationship between the number of direct and indirect trauma exposures and quality of life and resilience was further investigated.
RESULTS: Analysis revealed significant improvement in physical health and household duties, and a significant decrease in leisure time related to quality of life, over 3 months. There was also a significant improvement in tolerance of negative affect related to resilience. At baseline the number of direct trauma exposures (m=1.95; range 0-8) was significantly correlated with leisure time (r=.313; p-.22) and tolerance (r= -.284; p=o.37). The number of indirect trauma exposures (m=3.24; range 0-12) was significantly correlated with general quality of life (r=-.295; p=.34). At three-month follow-up the number of indirect trauma exposures (m=3.20; range 0-10) was significantly correlated with classwork (r=-.295; p=.35), leisure time (r=-.402; p=0.003) and social interaction (r=-.368;p=.007).
CONCLUSION: The results indicate a significant improvement in some quality of life domains and in resilience. This may be accounted for by psycho-education related to self-care and health offered as part of the training. It may also be due to traumatic growth following exposure to critical incidents.

ABSTRACT NUMBER / ABSTRAKNOMMER: 23

SUCCESS RATE WITH MRI NEUROIMAGING RESEARCH IN UN-SEDATED YOUNG HIV INFECTED CHILDREN USING SIMULATION SCAN PREPARATION.

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Body Imaging Centre Department of Human Biology), Barbara Laughton (Stellenbosch University - Family Clinical Research Unit, Department of Pediatrics)

Background: Magnetic resonance neuroimaging (MRI) studies involving children are difficult because participants must remain motionless for extended periods without sedation. We describe the success rate for un-sedated 5-and 7-year-old children on a 3T Allegra MRI (Siemens, Erlangen).
Methods: HIV infected (HIV+) and uninfected (HIV-) children from a sub-study of the Children with HIV Early Antiretroviral Therapy (CHER) trial were scanned at 5 and 7 years. Children who tolerated a simulation scanner returned for neuroimaging while the child watched a movie of his/her choice. The hour-long protocol included structural, diffusion tensor, and spectroscopic imaging, with the addition of resting state functional MRI at 7 years. We collected information on image acquisition (provided at least one scan sequence), scanner tolerance (calm in scanner the entire session), and neuroimaging data usability assessed using Freesurfer, LCModel, FSL and AFNI software. The effect of HIV exposure and gender on success rates was explored.Results: At 5 years, 115 (male 57, HIV+ 73) participated and 139 (male 71, HIV+ 80) at 7 years. The mean±SD usable images was 5±1.3 and 6±1.2 at 5 and 7 years respectively. Image usability was affected by HIV status at 5 years (HIV+ 5±1.3; HIV- 3±1, p=0.0067), and gender at 7 years (girls 6±1; boys 5±1.2, p=0.004). Success rates improved for participants (n=102; 79%) participating at both times (male 50, HIV+ 73): image acquisition (75% to 94%; p<0.001), scanner tolerance (20% to 60%; p<0.001), and full scan data perfectly usable (7% to 21%, p=0.0015).
Conclusions: Acquisition of useable neuroimaging data in un-sedated young children improved with age. HIV+ children contributed more usable data at 5 years as they are potentially more comfortable with medical procedures. Although perfect data acquisition and usability is unlikely, a similar frequency of usable data are collected at both time points when using the simulation scan preparation.

ABSTRACT NUMBER / ABSTRAKNOMMER: 24

EPIGENETIC-BRAIN IMAGING INVESTIGATION: ANXIETY SENSITIVITY IN SOUTH AFRICAN ADOLESCENTS.

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Anxiety sensitivity (AS) is a well-established anxiety disorder endophenotype under the influence of genetic and environmental factors. Epigenetics, and DNA methylation specifically, provides a method of investigating interaction between thesegenetic and environmental variables. Adolescence represents a period during which the environment is able to shape the epigenome. This could lead to stable structural and functional changes in the central nervous system and alter risk for developing psychopathology later in life. The study aims to investigate the role that genome-wide alterations in DNA methylation play in the variance in functional brain imaging data observed in adolescents who have AS and high levels of childhood trauma compared to i) adolescents with AS and low levels of childhood trauma; ii) adolescents without AS but high levels of childhood trauma and iii) adolescents without AS and with low levels of childhood trauma. Participants were selected based on results from clinical questionnaires and DNA methylation profiling was conducted using the Infinium HumanMethylation 450k Beadchip by Illumina on bisulphite-converted DNA, extracted from whole blood (N=65). Beadchip data was filtered based on expression in the brain, p-value and fold change. Genes of interest were verified using the EpiTYPER MASSarray system by Sequenom. Six genes: BAI2, PRKCZ, GALNT9, DDAH2, STEAP3 and SLC8A2 have been identified as moderately differentially methylated between groups using the 450k Beadchip. Therefore, the 450k Beadchip proves useful to

identify candidate genes, prominently expressed in the brain, with regards to anxiety disorders using DNA extracted from blood.

ABSTRACT NUMBER / ABSTRAKNOMMER: 25

GUT MICROBIOME PROFILE OF PTSD PATIENTS FROM A UNIQUE SOUTH AFRICAN POPULATION.

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Posttraumatic stress disorder (PTSD) is characterised by a complex interplay of genes & the environment. The microbiome plays a vital role in normal central nervous system functioning. Dysregulation of the microbiome influences risk of disease, including anxiety & mood disorders. This pilot study investigated the gut microbial profiles of 18 PTSD patients vs. 12 trauma-exposed controls (TEC), in a unique mixed ancestry South African population. DNA was extracted from stool and 16S rRNA amplicons (V3&V4 regions) were generated. Libraries were sequenced using Illumina HiSeq paired-end 100bp sequencing. Appropriate bioinformatics analyses were performed. The two most dominant phyla were Bacteroidetes & Firmicutes; furthermore, a subset of PTSD subjects had high relative abundance of Cyanobacteria and low relative abundance of Actinobacteria and Firmicutes (both have probiotic properties). Cyanobacteria have been associated with neurodegeneration through production of neurotoxic β-N-methylamino-L-alanine (BMAA). Bacteria enriched in the microbiome of these PTSD patients possibly promote gut inflammation, facilitate bacterial translocation to the bloodstream with subsequent gut-brain axis dysregulation and neurodegeneration. Our preliminary results warrant further investigations in larger sample sizes.

ABSTRACT NUMBER / ABSTRAKNOMMER: 26

EFFECTS OF ESCITALOPRAM CHALLENGE ON WHITE MATTER INTEGRITY IN OBSESSIVE-COMPULSIVE DISORDER AND HEALTHY CONTROLS.

Annerine Roos (Stellenbosch University - Psychiatry), Jean-Paul Fouche (Stellenbosch University - Psychiatry), Dan J Stein (University of Cape Town - Psychiatry and Mental Health), Christine Lochner (Stellenbosch University - Psychiatry)

Background: Involvement of the serotonergic system in OCD is well-known, with OCD responding to selective serotonin reuptake inhibitors (SSRIs). Chronic use of SSRIs changes brain connectivity in OCD, and a single dose of an SSRI dramatically alters functional connectivity throughout the brain in healthy subjects. The question is raised whether acute administration of an SSRI can also significantly alter white matter integrity in the brain of patients with OCD.

Methods: OCD patients (n=20) and matched healthy controls (n=24) received a single dose of escitalopram 20mg on one day, and a single dose of placebo on another day, in randomized order, under double-blind conditions. Diffusion tensor imaging (DTI) was used to compare white matter integrity of the whole brain between the groups. The impact of the SSRI challenge on white matter in these two study groups were subsequently investigated, controlling for age.
Results: There were no significant interaction effects (diagnostic group x pharmacological challenge) or effects in the OCD group separately. In controls, the escitalopram challenge had a significant impact on white matter diffusivity of the left post thalamic radiation (PTR-L) ($F=7.84$; $p=0.01$), the superior corona radiata bilaterally (SCR: $F=7.99$; $p=0.01$) and the sagittal stratum bilaterally (SS: $F=6.64$; $p=0.02$). In these tracts, FA was significantly higher and RD significantly lower after the pharmacological challenge compared to placebo.
Discussion: Acute administration of an SSRI did not significantly alter white matter integrity in the brain of OCD patients. It did however improve white matter integrity in tracts that connect regions that may be affected in OCD, in controls. DTI-derived parameters are differently affected in OCD and healthy controls, respectively, in structures within the fronto-striato-thalamo-cortical loop after chronic SSRI treatment. Alteration of white matter integrity may occur in OCD with longer treatment duration or at a different dosage with plasticity potentially playing a role.

ABSTRACT NUMBER / ABSTRAKNOMMER: 27

DESCRIPTION OF THE ANTERIOR CEREBRAL ARTERY AND ITS CORTICAL BRANCHES: VARIATION IN PRESENCE, ORIGIN, AND SIZE.

Karen Cilliers (Stellenbosch University - Department of Biomedical Science)

Certain aspects of the anterior cerebral artery (ACA) and its cortical branches tend to vary. This includes absent or additional arteries, variation in origin, and changes in diameter and length. Knowledge of these factors can be crucial in aneurysm and arteriovenous malformation surgery. However, few studies report on these aspects and these aspects have not been reported in a South African study. Therefore, the aim of this study is to report absent or additional arteries, the origin, and the diameter and length of ACA cortical branches in a Western Cape population.A coloured silicone was injected into the ACA of 121 hemispheres (60 right, 61 left), consisting of 83 males and 38 females. Specimens were divided in groups younger than 34 (n=36), between 35 and 48 (n=35), older than 49 (n=40), and unknown (n=10). There were three population groups; coloured (n=72), black (n=37), white (n=10), and unknown (n=2). Any absent or additional arteries were noted, as well as the origins. External diameter and lengths were measured using a digital micrometre, string and a ruler.Most commonly absent (callosomarginal artery) and additional (paracentral lobule artery) arteries were noted. The definition of the callosomarginal artery was further defined, since studies may overestimate the presence of this artery. Origins of the cortical branches were similar to the literature; however, previously unreported origins and common trunks were also observed. Diameters and lengths indicated significant differences, especially between the right and left hemisphere. Studies generally do not report differences between left and right, sex, age and population groups.The aspects reported in this study have been neglected in previous work and neurosurgeons should be aware of these variations and anomalies to avoid complications. Studies should continue to investigate the cerebral vasculature since undocumented variations are still being reported.

ABSTRACT NUMBER / ABSTRAKNOMMER: 28

REVIEW OF THE ANATOMY OF THE DISTAL ANTERIOR CEREBRAL ARTERY AND ITS ANOMALIES.

Karen Cilliers (Stellenbosch University - Department of Biomedical Science)

The anterior cerebral artery (ACA) varies considerably and this complicates the description of the normal anatomy. The segmentation of the ACA is mostly agreed on by different authors, although the relationship of the pericallosal and callosomarginal arteries (CmA) is not agreed upon. The two basic configurations of the ACA are determined by the presence or absence of the CmA.The diameter, length and origin of the cortical branches have been measured and described by various authors and display great variability. Common anomalies of the ACA include the azygos, bihemispheric, and median anterior cerebral arteries. A pilot study was done on 19 hemispheres to assess the variation of the branches of the ACA. The most common variations included absence and duplication. The inferior internal parietal artery and the CmA were most commonly absent and the paracentral lobule artery was the most frequently duplicated (36.8%). The inferior internal parietal artery originated from the posterior cerebral artery in 40.0% and this was the most unusual origin observed.It is important to be aware of the possibility of variations since these variations can have serious clinical implications. The knowledge of these variations can be helpful to clinicians and neurosurgeons. The aim of this article is to review the anatomy and variations of the anterior cerebral artery, as described in the literature. This was also compared to the results from a pilot study.

ABSTRACT NUMBER / ABSTRAKNOMMER: 29

THE INFLUENCE OF CHILDHOOD TRAUMA, MAJOR DEPRESSIVE DISORDER AND HIV-ASSOCIATED NEUROCOGNITIVE DISORDERS ON TELOMERE LENGTH

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HIV-associated neurocognitive disorders (HAND) are increasingly prevalent and have a marked impact on quality of life. Of relevance in the South African context, HAND may be combined with a history of childhood trauma and stress-related psychiatric conditions to further impact on mental health and cognitive function. We sought to examine the association between HAND and psychological stress in a cohort of HIV-positive and –negative women. We examined telomere length attrition, a marker of biological aging, which has previously been independently associated with childhood trauma, major depressive disorder and the development of HAND. The full analysis of our data is not yet complete but will focus on two primary questions: 1) the relationship between telomere length, current major depression and neurocognitive decline in HIV-positive women who have experienced childhood trauma and 2) the association between change in telomere length and prospective cognitive decline at one year in participants who experienced an untreated major depressive episode at baseline compared with those without current major depression. Our analysis should provide further information on whether change in telomere length may mediate the relationship between HAND and psychological stress.

ABSTRACT NUMBER / ABSTRAKNOMMER: 30

CLINICAL OUTCOMES IN PATIENTS WITH ALCOHOL AND/OR COCAINE USE DEPENDENCE IN A REHABILITATION PROGRAMME

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Background: The psychological construct of self-efficacy and depressed mood have shown successful predictors of treatment outcomes in Substance Use Disorders (SUDs) [1,2]. **Methods:** Depression and self-efficacy to abstain were assessed in *n* = 61 abstinent participants diagnosed with Alcohol Use Disorder (AUD) AND/OR Cocaine Use Disorder (CUD). **Results:** With regards to depressive mood significant improvements were observed over time (*F* (1.55) = 64.858, *p*=<.001). Significant improvements in perceived alcohol related self-efficacy was observed (*F* (2.52) =3.6471, *p*=.03). The AUD and the AUD/CUD groups (*p*<.001) both experienced increased self-efficacy to abstain from Alcohol. The CUD group difference was non-significant which perceived high self-efficacy to abstain from alcohol use at week 1 and 8. Significant improvements were observed in cocaine use self-efficacy. The CUD group (*p*<.001*)* and AUD/CUD (*p*=.003) groups both improved significantly whereas the AUD group difference was non-significant which perceived high self-efficacy to abstain from cocaine use at week 1 and 8. Subscales for the self-efficacy questionnaire were analysed and showed unexpected results on the subscale *social situations* on both the alcohol and the cocaine self-efficacy questionnaires. The AUD/CUD combination group did not improve. Surprisingly the CUD group perceived self-efficacy decreased significantly with regards to alcohol use (*p*= .003*)* but improved on perceived self-efficacy towards cocaine use (p= .004). **Conclusion:** Patients diagnosed with AUD and/or CUD significantly improve with regards to clinical outcomes after inpatient treatment. Limitations of the study and recommendations for future research are discussed.

ABSTRACT NUMBER / ABSTRAKNOMMER: 31

INVESTIGATING THE EFFECTS OF ALCOHOL ON THE GUT MICROBIOME

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Background: Alcohol has been found to induce changes in microbial composition in alcohol-dependent individuals. Most alcoholic beverages contain polyphenols and there exists a 2-way relationship between microbiota and polyphenols. Polyphenols can influence the composition of the host microbial population. The microbiome is established early in life, as maternal bacteria are transferred to the newborn via vertical transmission from mother to the newborn. Aims and objectives: This study forms part of a bigger study which aims to characterize microbial alterations that are associated with development of Fetal Alcohol Spectrum Disorders. We therefore sought to characterise the gut microbiota in a cohort of pregnant women in order to determine if excessive alcohol consumption during pregnancy is associated with dysbiosis in the gut microbiota, and to associate changes in the composition of the gut microbiome with metadata obtained. Materials and Methods: Informed consent was obtained from 95 participating women of mixed ancestry, ranging in age from 18-44. The participants were divided into patients (n=46) and controls (n=49) based on biological measurements such as Phosphatidylethanol (PEth) and Ethyl Glucuronide (EG) Scores obtained. Microbial DNA was extracted from the stool of each subject and subsequently sent for 16 rRNA

Sequencing on the Illumina MiSeq, amplifying for the V3/V4 region. Results and discussion: 12% of the participants had both positive PEth and EG Scores, 17% and 20% of the participants had either a positive PEth Score/positive EG score, respectively. 51% of the participants had both negative PEth and EG scores. Further analysis of the 16S rRNA Sequencing using the Quantitative Insights Into Microbial Ecology (QIIME) package is underway and the results will be presented at Academic Year Day.

Theme 6 / Tema 6

Perioperative Sciences / Perioperatiewe Wetenskappe

Oral Presentations/ Referate

ABSTRACT NUMBER / ABSTRAKNOMMER: 1

TREATMENT OF IDIOPATHIC HYDROCELES: A PROSPECTIVE, RANDOMISED COMPARISON BETWEEN SURGICAL HYDROCELECTOMY (SH) AND ASPIRATION SCLEROTHERAPY (AS) WITH PURIFIED MINERAL TALC

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Introduction: Acquired hydrocele is a common cause of increased scrotal size in the adult male. In cases where treatment is indicated, the most common modality used, is surgical hydrocelectomy (SH). SH has a high success rate but is associated with significant complication rates and substantial costs. Aspiration sclerotherapy (AS) is a well-described alternative to SH. Numerous pharmacologic agents have been used as hydrocele sclerosing agents, all with varying success. Purified mineral talc is inexpensive, readily available in South Africa and has proven to be an effective sclerosing agent in studies involving pleurodesis. Aim: To compare SH with AS using purified mineral talc as sclerosing agent, with regard to the following outcomes: Single-procedure success rate, complication and use of resources. Methods: A randomized control trial had been conducted where 60 patients with 69 idiopathic hydroceles were randomized (1:2) to treatment with SH or AS with talc. Patient's were followed-up 1 week after procedure and again at 3-, 6- and 12-months with a short questionnaire, physical examination and scrotal ultrasound evaluation. Results: There was no association between type of procedure and treatment success at the 3, 6 and 12-month follow-up intervals ($p > 0.05$). SH had a higher success percentage at all follow-up intervals, however, these differences were not statistical significant. The mean pain and discomfort scores were both not significantly different between the groups. The mean procedure duration for AS was 16 minutes compared to 26 minutes for SH ($p < 0.0005$). Mean hospital stay for the AS group was 2.8 hours compared to 43.2 hours for the SH group ($p < 0.0005$). The days off work was significantly less for the AS group (5 vs 8, $p=0.027$). Conclusions: As with purified mineral talc is an effective and low-cost alternative to SH for the treatment of idiopathic hydroceles, especially in resource-strained environments.

ABSTRACT NUMBER / ABSTRAKNOMMER: 2

SURGERY FOR BRONCHIECTASIS IN HIV POSITIVE CHILDREN: INDICATIONS, COMPLICATIONS AND OUTCOME

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Background: Bronchiectasis in human immunodeficiency virus (HIV) infected children remains a significant cause of morbidity and mortality, especially in tuberculosis endemic countries. Currently the treatment modalities for bronchiectasis in HIV positive children focus mainly on prevention of subsequent infections and management of symptoms while surgical management is seldom considered. In contrast to this, the surgical management in non-cystic fibrosis bronchiectasis is well established. This study aims to describe the indications and complications of surgical resection for bronchiectasis in HIV-infected children and to identify variables influencing outcome. Methods: A retrospective medical records review was conducted of all HIV-infected children, 14 years and younger, who underwent surgical resection for bronchiectasis in Tygerberg Hospital, South Africa, between 1 January 2007 and 30 September 2014. The variables collected included: immune status, anti-retroviral treatment, previous Mycobacterium tuberculosis treatment, operative and post operative complications and post-operative symptom relief. Results: Twelve HIV positive children on anti-retroviral treatment with symptomatic bronchiectasis underwent surgical resection. The mean age was 7 years (1y10m to 13y3m). Indications for surgery included recurrent infections, chronic cough and persistent lobar collapse. The most common procedures were left lower lobe lobectomy

(42%), left pneumonectomy (17%) and right bi-lobectomy (17%). Complications were limited to a persistent pneumothorax in one child. There were no deaths. Ten children (83%) showed significant improvement of symptoms at follow-up. Conclusions: Surgical resection for bronchiectasis in HIV positive children can be safely performed with a low complication rate resulting in significant improvement of symptoms post-operatively.

ABSTRACT NUMBER / ABSTRAKNOMMER: 3

A COMPARISON OF FOUR METHODS OF ENDOTRACHEAL TUBE PASSAGE IN SIMULATED AIRWAYS - IS THERE ROOM FOR IMPROVED TECHNIQUES?

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Background: Passage of an endotracheal tube (ETT) into the trachea is an essential portion of airway management. Four different methods aid ETT are frequently advocated: a 'naked' ETT without adjuncts, a preformed stylet inside an ETT, a bougie followed by a railroaded ETT, and an ETT with preloaded bougie. There is currently minimal evidence to support which method is best for first pass success rate (FPS).We aimed to demonstrate which method has the highest FPS and shortest time to endotracheal intubations (ETI). Methods: This is a cross-sectional, prospective, cross-over manikin study design. Participants performed timed ETI on "easy" and "difficult" airway models.The primary outcome was defined as FPS. The secondary outcomes include time taken for ETI and participants' preferred technique. ETI times were measured from commencement of laryngoscopy until first ventilation. Pre- and post-tests surveys recorded participant experience and perceptions of the four methods. Results: Preliminary data was collected on a 111 participants (888 ETI attempts). Of these participants, 54 worked in anaesthesia, 33 in emergency medicine, and 24 in out-of-hospital environments.In the "difficult" airway, FPS was 32% using the naked ETT. Stylet, railroaded bougie, and preloaded bougie had 96%, 78% and 91% respectively. Mean time to ETI was faster in the stylet technique (25 seconds) with the railroaded bougie technique being the slowest (42 seconds).79% of participants stated that they would change their practice. A significant increase in preference of 38% towards the preloaded bougie. Conclusions: The continued use of a naked ETT for ETI in the difficult airway is not recommended. ETI was most rapid using a stylet or preloaded bougie. This study shows that ETI with adjuncts such as a stylet or a bougie is both superior in achieving FPS and faster in a difficult airway model.

ABSTRACT NUMBER / ABSTRAKNOMMER: 4

STUDY ON THE CLINICAL IMPLICATIONS OF THE SCIATIC NERVE DIVISION ON THE POPLITEAL NERVE BLOCK

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Background: The sciatic nerve (SN) is the longest and largest nerve of the body, running from the pelvis to the distal extremity of the thigh. It originates from the ventral rami of fourth lumbar nerve (L4) to third sacral nerve (S3). The SN then splits in the popliteal fossa (PF), which is the region posterior to the knee joint where the block is realized to anesthetize structures in surgical procedures below the knee. This technique called popliteal block (PB) is still underused due to a variable success rate and the inability to accurately identify the PF and to localize the nerve in some individuals. The study of anatomical location of the nerve and its variations is a critical tool in anaesthesia, as the anatomical variations may cause the failure of the block. Material and Methods: Fifty-four cadavers from the division of Anatomy and Histology of the Faculty of Medicine and Health Sciences (Stellenbosch University) were used for this study. First, the PB was simulated on 10 cadavers with 1ml of silicone used as a dye and mixed with 3 different pigments. Three approaches were used and

a colour was assigned to each of them. Secondly, the 108 lower limbs were dissected to describe the anatomy of the SN, its division and the main variations observed. The results are now being analysed and the variables considered are the gender, the level of division, the symmetry within the two legs and the different measures. Expected results: This study aims to determine the incidence of the variations of the level of division of the SN in a heterogeneous South African population. Those results will then be compared to previous studies. Moreover, it will assess the impact of the variations of the level of division on the success rate of the PB.

ABSTRACT NUMBER / ABSTRAKNOMMER: 5

TREATING UNSTABLE WEBER C ANKLE FRACTURES IN ADULTS WITH AN INTRAMEDULLARY LOCKED FIBULA NAIL: SHORT-TERM CLINICAL, RADIOLOGICAL AND FUNCTIONAL OUTCOMES.

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RP LAMBERTS (Division of Orthopaedic Surgery, Stellenbosch University)

Introduction: Ankle fractures in adults are common and represent about 9% of all trauma injuries. The fibula nail has been used succesfully in the elderly population. Our aim was to determine the short-term clinical, radiological and functional outcomes of treating unstable Weber C ankle fractures in young adults with an intramedullary locked fibula nail. These results were compared to a retrospective group of young adults that were treated with conventional plate and screw fixation. Methods: Twenty prospective patients (29 ± 10 years) and 14 retrospective patients (34 ± 19 years) were recruited. Patients in the nailing group were treated with an Acumed intramedullary fibula nail, while all patients in the plating group were treated with a plate and screw technique. Both patient groups were followed up at two, six and 12 weeks post-operatively and assessed clinically and radiologically. At 12 weeks a functional assessment was done. A computed tomography scan of the ankle was also done to assess the reduction of the syndesmosis. Results: The fibula nailing group had a better overall Olerud and Molander functional score at three months post-operatively compared to the plating group (85 vs. 70 ($p = 0.01$). All fractures united without complications. Computed tomography scans of the syndesmosis showed adequate reduction in both groups. Conclusion: Intramedullary fibula nailing can be used effectively in the treatment of unstable Weber C ankle fractures in adults. It is an effective treatment regime in the younger population group. Patients in the nailing and plating group had comparable radiological outcomes in terms of fibula fracture reduction and reduction of the syndesmosis. Intramedullary fibula nailing had superior functional outcome scores at three months post-operatively compared to plate and screw fixation. Future research should aim to conduct a long term randomized trial to confirm these preliminary findings.

ABSTRACT NUMBER / ABSTRAKNOMMER: 6

A PROSPECTIVE, RANDOMIZED CONTROLLED STUDY COMPARING LOCKED INTRAMEDULLARY NAILING OF DISTAL RADIUS FRACTURES TO LOCKED VOLAR PLATING

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Introduction: Propofol has been shown to be a safe for sedation during flexible bronchoscopy, but data for its use in medical thoracoscopy is limited.Aims and objectives: We initiated a multicentre randomized study, aiming to compare both the safety and adequacy of medical thoracoscopy performed with two different conscious sedation regimens (midazolam/fentanyl vs. propofol/fentanyl) administered by a non-specialist anaesthetist. Methods: Either propofol or midazolam was given in boluses. Fentanyl was used in all. Procedure time, complications and patient discomfort were defined and documented. The adequacy of the sedation according to the endoscopist and recovery time were measured. Results: We enrolled 38 patients (67.5±11.9 years, 23 males), with 18 patients

randomised to propofol and 20 to midazolam. We observed no differences in procedure time (37.6 vs. 36.2 min, p = 0.57), recovery time (20.1 vs. 20.8 min, p=0.86), adequacy of sedation as perceived by the endoscopist (p=0.73). There were, however, 10 adverse events observed in the propofol group compared to 4 in the midazolam group (p = 0.04). Adverse events in the propofol group included desaturation responsive to supplementary oxygen (n=6), desaturation requiring temporary bag valve ventilation (n = 1), hypotension requiring intravenous fluid resuscitation (n=2) and the need to abort the procedure (n=1); compared to the midazolam group which included desaturation responsive to supplementary oxygen (n=3) and hypotension not requiring intervention (n=1). Conclusion: Propofol is not the drug of choice for sedation during medical thoracoscopy, given the increased risk of complications.

ABSTRACT NUMBER / ABSTRAKNOMMER: 7

COMPARISON OF A LOW-COST HOME UROFLOW METER (UROWATCH) AND THE ELECTRONIC DANTEC URODYN 1000 UROFLOW

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Introduction: The Urowatch is a home flow rate meter. It uses a paper test strip to measure flow, does not require electricity and is made of low-cost material. It offers the possibility for uroflowmetry at home or in remote clinics. Calibration using precision nozzles in a laboratory showed an excellent correlation in maximum urinary flow (Qmax) between the Urowatch and Dantec Urodyn 1000 uroflowmeters in the laboratory. Aim: To compare the Urowatch with the Dantec uroflowmeter in a patient population. Methods: 172 men with lower urinary tract symptoms (LUTS) (mean age 64) passed urine in both devices, on the Dantec and Urowatch, alternately. Qmax and Q average was measured. Results: There was a significant difference between the average flow rate (Qave) and the Qmax (Dantec 16.83 ml/sec vs Urowatch 10.86 ml/sec $p < 0.001$). Conclusions: The results indicate that, the Urowatch might not measure accurately compared to the gold standard.

ABSTRACT NUMBER / ABSTRAKNOMMER: 8

A REVIEW OF THE FIRST 22 EXTRAPERITONEAL LAPAROSCOPIC RADICAL PROSTATECTOMIES PERFORMED AT TYGERBERG HOSPITAL, SOUTH AFRICA

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Background: Open radical prostatectomy (ORP) is regarded as the gold standard of treatment for localised prostate cancer, despite it being performed less in centres of excellence due to the introduction of minimally invasive approaches. Introducing the retroperitoneal laparoscopic (LRP) approach, as a new, albeit existing alternative to open surgery to a surgical unit often has a steep learning curve, necessitating close scrutiny of intraoperative variables, surgical complications and oncological outcomes. Objectives: To evaluate surgical complications and oncological outcomes of the first 22 cases of extraperitoneal laparoscopic radical prostatectomies performed in the Department of Urology, Tygerberg Hospital. As a secondary outcome, estimated blood loss and blood transfusion rates were compared to the open radical prostatectomies performed for the same period. Methods: The clinic records of 41 patients who underwent LRP and ORP at Tygerberg Hospital between January 2014 and July 2016 were collected. The first author performed all the laparoscopic cases after completing a training observership in the United Kingdom in 2014. Surgical complications were recorded using the Clavien-Dindo classification. Outcomes were estimated by the post-operative PSA, continence rates and percentage of positive surgical margins. Results: The mean patient age was 62 years (range 51 to 71) years, body mass index (BMI) mean was 28 kg/m^2 (range 21 to 36) and the mean PSA at diagnosis was 12.4 ng/ml (range 2.4 - 31). Mean operating time was 216 min (range

118 - 400), mean blood loss was 240 ml (range 30 to 700) requiring only one (5%) transfusion. One case required conversion to open surgery due to ventilatory complications. 75% of the LRP cases were regarded as oncological successful, with a postoperative PSA < 0.2ng/ml. 81% of patients had positive surgical margins and 81% of patients were continent at one year. When comparing the data of the LRP to the ORP data of 2014, only blood loss and transfusion rates were statistically favouring LRP. When adjusting the series into the last 50% cases performed, operating time additionally significantly favoured LRP (p = 0.026). One Grade 5 complication was declared an anaesthetic related death, one rectal injury occurred, managed immediately laparoscopically, one patient developed intra-operative cardiac ischaemia that was treated successfully with medical intervention (grade 2) and all other complications were grade 1. Conclusion: Extraperitoneal laparoscopic radical prostatectomy can be safely introduced to a surgical unit as a viable and safe alternative to open radical prostatectomy, with surgical complications and oncological outcomes comparable. A steep learning curve exists, but constant improving results are seen with increased surgical volumes.

ABSTRACT NUMBER / ABSTRAKNOMMER: 9

PARENTERAL GLUTAMINE SUPPLEMENTATION IN CRITICALLY ILL ADULTS: AN APPROACH TO SUPPORT EVIDENCE-INFORMED DECISION-MAKING BY A NATIONAL ESSENTIAL MEDICINES LIST (EML) EXPERT REVIEW COMMITTEE

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Background: Essential medicines are those that satisfy a population's priority health care needs, selected by considering disease prevalence and evidence on efficacy, safety and comparative cost-effectiveness. The National Nutrition Directorate (NND) asked the Centre for Evidence-based Health Care to review the evidence on parenteral glutamine supplementation in critically ill adults, for their submission to the National Tertiary and Quaternary Level EML Expert Review Committee, on the inclusion of parenteral glutamine in the South African EML. Aim: To describe our approach to preparing a summary of the best available evidence to inform the EML Expert Review Committee's decision-making process. Methods: In consultation with NND, we formulated an answerable question that defined our eligibility criteria. Search yields from six electronic databases (December 2015) were screened independently and in duplicate to find all eligible systematic reviews (SRs). We assessed methodological quality (validated AMSTAR tool) and extracted outcome data from all eligible SRs. The most recent, comprehensive SR with the highest methodological quality formed the basis of the evidence summary. The robustness and certainty of the evidence in this review was determined by assessing the risk of bias (ROBIS tool) and quality (Grading of Recommendations Assessment, Development and Evaluation). Results: The findings of 12 SRs were included in the evidence summary. We prepared an Evidence Profile providing the effect size and certainty of the evidence for seven important outcomes in critically ill patients supplemented with parenteral glutamine only. For context and comparison, we tabulated summary estimates from all included SRs and for various subgroups of patients (e.g. elective major surgery, acute pancreatitis). The evidence summary was submitted and presented at an EML Committee meeting. Conclusions: Using a systematic, transparent approach to accessing, critically appraising, summarising and presenting the best available evidence, we contributed to facilitating the use of research evidence in national policy decision-making.

Theme 7 / Tema 7

Maternal and Child Health/ Moeder- en Kind Gesondheid

Oral Presentations/ Referate

ABSTRACT NUMBER / ABSTRAKNOMMER: 1

AN INVESTIGATION INTO ISIXHOSA- AND KAAPS-SPEAKING GRADE TWO LEARNERS' SYMBOL PREFERENCE AND INTERPRETATION OF 25 COMMON NOUNS

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BACKGROUND Augmentative and Alternative Communication (AAC) refers to the arena of clinical and educational practice, which offers a set of strategies and approaches in the form of special symbol sets to augment natural speech and/or handwriting, and sometimes to even replace it (Lloyd, Fuller, & Arvidson, 1997). The majority of previous research has failed to consider the impact of culture and ethnicity, as well as linguistic background on individuals' perception of symbols used in AAC intervention (Huer, 2000). Knowledge of the nature and extent to which culture can therefore optimize AAC intervention can have an impact on the interpretation of symbols. The purpose of this research study is to describe the symbols typically developing IsiXhosa and Kaaps-speaking Grade two students prefer to represent 25 common nouns, and to determine the reason for the participants' preferences. METHODS This study makes use of a mixed research design. Quantitative data analysis is used to determine the participants' symbol preference. Qualitative data analysis focuses on the identification of patterns and trends with regards to why participants chose certain symbols. The Xhosa-English medium school is located in the Cape Town Metropole, while the Afrikaans medium school is located on the Cape Flats. RESULTS The research study is still in progress, i.e. data analysis is still taking place at the moment. Thus, there are no final results available yet. CONCLUSION Since the research is still in the data analysis phase, no conclusions can be made at this stage. The researchers, however, seek to make a conclusion about how cultural and linguistic background influences symbol preference of both groups based on the interpretations made from the data collected. They also seek to make suggestions on how symbols of AAC intervention can be adapted to account for the cultural and linguistic influence.

ABSTRACT NUMBER / ABSTRAKNOMMER: 2

HOW LONG DO DOCTORS SPEND, PER PATIENT, CARING FOR CHILDREN PRESENTING TO THE EMERGENCY CENTRE?

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Scarce information exists regarding how long doctors spend per paediatric patient in the emergency centre setting. We aimed to measure the time that it took for doctors to care for paediatric emergency patients in two emergency centres, to ascertain how these compared to the Department of Health (DoH) estimations, and between triage categories.METHODSA 'time and motion' study was conducted by a single investigator (RS) in two emergency centres, Tygerberg Children's Hospital (TCH) and Khayelitsha District Hospital (KDH), between December 2015 and January 2016. Time and motion methodology involves "continuous and independent observation of clinicians' work," and typically implies one-on-one observation of the clinician by the investigator. WOMBAT v2.0 software was used to measure time spent in patient care by each doctor involved. New patients under 13 years of age were selected consecutively according to SATS triage categories where possible, or by convenience sampling. Time taken for assessment and administration (including procedures, note keeping and discussion) was measured.RESULTS100 patients were timed. The median times spent in

patient care in different triage categories were the following: green 30 min; yellow 39 min; orange 48 min, red 95 min. Pairwise comparison showed significant differences between all categories except green & yellow and yellow & orange. 'Urgent' cases (oranges and red combined) took a median of 63 minutes. Green and 'Urgent' cases differed significantly from DoH estimates (15 and 50 minutes respectively). 32% of cases had more than two doctors involved in their care. CONCLUSIONOur results suggest that it takes significantly longer to care for the majority of paediatric emergency patients than DoH estimates. Somewhat counterintuitively, this especially applies to 'non-urgent'/green cases that are a significant percentage of 'emergency' paediatric patients. Such information is useful to assist in workforce planning, particularly where large numbers of children are seen.

ABSTRACT NUMBER / ABSTRAKNOMMER: 3

THE IMPACT OF HOUSEHOLD ENVIRONMENTAL TOBACCO SMOKE EXPOSURE ON RISK OF TB INFECTION IN CHILDREN WITH HOUSEHOLD TB EXPOSURE

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BackgroundReducing TB transmission is an important strategy to prevent TB in children. There is strong evidence linking environmental tobacco smoke (ETS) exposure and TB in adults, but evidence in children is limited. We investigated the association between household ETS exposure and prevalent Mycobacterium tuberculosis (M.tb) infection in children with household TB exposure.MethodsChild TB contacts (3 months–15 years) were recruited from three community clinics in Cape Town. Data were collected through caregiver interviews, clinical and laboratory evaluations at enrolment and month 3. M.tb infection was defined as either positive tuberculin skin test (TST) or interferon gamma release assay (IGRA) at baseline or month 3. Multivariate analyses were completed using random effects logistic regression.Results671 child contacts ([median age 5.3 years (IQR2.8-9.0)], 357(53.2%) female; 539(80.7%) mixed race ethnicity) were enrolled. Three quarters (513;76.5%) had reported household ETS exposure. TB infection was prevalent in 342/665(51.4%) and 378/663(57.0%) contacts by TST and IGRAs respectively.Odds of TB infection were three times higher in child TB contacts exposed to household ETS after adjusting for age, previous TB, TB contact score, housing type and structure and cellular telephone access [TST aOR 3.26 (95%CI1.67-6.33),p=0.001; IGRA aOR 3.12 (95%CI1.52-6.39,p=0.002)]. A dose-response was observed in multivariate analyses, with odds of M.tb infection increasing 1.6 times for every additional two household smokers reported (TST aOR 1.62 (95%CI 1.18–2.23,p=0.003); IGRA aOR 1.57 (95%CI 1.10-2.24,p=0.013)). The population attributable fraction (PAF) of smoking for M.tb infection amongst child TB contacts using the more conservative IGRA-based estimate was 0.56.ConclusionsIn this high-burden TB setting, we found frequent ETS exposure in children with household TB exposure. The high PAF emphasizes the potential impact that smoking cessation interventions could have to reduce M.tb infection amongst child TB contacts in settings where both TB and tobacco usage are highly prevalent.

ABSTRACT NUMBER / ABSTRAKNOMMER: 4

GENEXPERT MTB/RIF ON STOOL IS USEFUL FOR THE RAPID DIAGNOSIS OF PULMONARY TUBERCULOSIS IN CHILDREN WITH SEVERE DISEASE

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Background Bacteriological confirmation of tuberculosis (TB) in young children can be challenging as the disease is paucibacillary and children require assisted production of sputum samples. Stool collection is easy and poses minimal infectionrisk to medical staff. We previously presented preliminary data on the detection of ingested M.tuberculosis in stool using culture and Xpert MTB/RIF (Xpert). In a larger prospective paediatric cohort we investigated the utility of Xpert on stool and address the potential applications of this diagnostic strategy. Methods Children <13 years of age with suspected intrathoracic TB were consecutively enrolled from Tygerberg and Karl Bremer hospitals, Cape Town, from April 2012-August 2015. Eligibility criteria were ≥1 of: prolonged cough, fever or poor growth, OR any cough duration with 1 of a) close contact with TB source case, b) reactive Mantoux, c) chest radiograph (CXR) suggestive of TB. Bacteriological investigations included multiple respiratory samples (gastric aspirate/sputum, induced sputum, nasopharyngeal aspirate) for smear microscopy, liquid culture and Xpert, and stool for Xpert. Severe disease was defined as complicated, extensive or miliary disease on CXR. Results Of 380 children [196 (52%) male, median age 16 months, 52 (14%) HIV-infected], 170 (45%) were treated for TB on clinical grounds. 72 (42% TB cases; 19% total) were confirmed by culture or Xpert from any sample. The sensitivity and specificity of stool Xpert vs. overall bacteriological confirmation were 32.9% and 99.7%, respectively. 23/48 (48%) children with bacteriologically confirmed, severe TB had Xpert-positive stool. Using two multivariable logistic regression analyses, Xpert-positive stool was associated with severe disease (aOR 22.10; 95% CI 2.88-169.54; p=0.003) controlling for age, and with cavities on CXR (aOR 7.05; 95% CI 2.16-22.98; p=0.001) controlling for age and expansile pneumonia. Conclusions Xpert on stool is convenient and useful as a rapid tool to confirm TB in children with radiologically severe TB.

ABSTRACT NUMBER / ABSTRAKNOMMER: 5

FEASIBILITY OF A NOVEL HANDHELD LUNG FUNCTION DEVICE IN CHILDREN INVESTIGATED FOR PULMONARY TUBERCULOSIS: A PILOT STUDY

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Background: There are limited data available on lung function measurements in young children living in resource-limited settings. To date there is no simple, reliable and reproducible lung function test, which can be used in infants and young children. We investigated the feasibility of a new handheld lung function apparatus in young children investigated for suspected pulmonary tuberculosis (PTB). Methods: This study was nested in a larger prospective cohort study in children investigated for suspected PTB in Cape Town, South Africa. We collected data on participant age, duration of the measurement, success rate and reasons for failure. Lung function measurements were done using the

Whistler© (MediSpirit, the Netherlands). The Whistler© has two options; the single occlusion technique (SOT) for children younger than 6 months, and the interrupter resistance technique (RINT) for children between 6 months and 6 years. Both measure airway resistance during tidal breathing. Results: In total 85 lung function measurements were done in 75 children (mean age 33 months; 45/75 60% male); eight children had 2 and one had 3 attempts. In total 47/85 (55.3%) measurements were successful. All measurements, except 2 failed SOT measurements, were RINT measurements. The mean duration of a successful measurement was 8 minutes (1-60) versus a mean of 22 minutes (4-113) in an unsuccessful measurement. Older age was related to a higher success rate (OR 1.03/month, 95% confidence interval 1.01-1.05, p=0.01). Reasons for the measurement to fail were poor cooperation by the child (28/38, 74%) or machine failure (10/38, 26%). Carers and staff expressed satisfaction with the ease of the procedure. Conclusions: Lung function measurements using the Whistler© are feasible in young children with suspected PTB but ongoing training is needed to increase success rate. The role of Mycobacterium tuberculosis and other respiratory infections on short and long-term lung function in children requires investigation.

ABSTRACT NUMBER / ABSTRAKNOMMER: 6

UNEXPECTED FINDINGS IN AN OPEN LUNG BIOPSY STUDY IN A MIDDLE-INCOME COUNTRY

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Introduction: South Africa is a middle-income country (MIC) with a large young population and high incidence of HIV and tuberculosis. In these circumstances infectious causes of diffuse lung disease (DLD) likely overshadows non-infectious causes. Aim: The aim of this study was to determine the diagnostic yield of OLB in HIV infected and HIV uninfected children with undiagnosed DLD.Method: This retrospective descriptive study was performed in Tygerberg Children's Hospital, South Africa. Including all children (1 month to 13 years) requiring an OLB from January 2004 to June 2014, with 2 distinct groups of children: Group 1; patients with oxygen dependent DLD, Group 2; ventilated for hypoxic pneumonia, not responding to therapy. OLB was performed if a diagnosis was uncertain after extensive investigation. Results: The study included 51 children, median age 6.3 months, 86% of the children tested for HIV (30% HIV-infected, 58% HIV-uninfected, 12% HIV-exposed at birth but uninfected)The diagnostic yield of OLB was 86% (n=44), and was significantly higher in HIV-infected than HIV-uninfected children ((77% vs 48%) (p=0.01)). Pneumonia was found in 25 cases (57%) with common agents- viruses (28%), cytomegalovirus (CMV) (20%), pneumocystis jiroveci (PJP) (12%), and a combination of CMV and PJP (12%). In HIV-infected and HIV-exposed children an infectious agent was more common than in HIV negative children. ((83% vs 44%)(p=0.01)) Undiagnosed TB (n =5)(10%) occurred equally in HIV-infected and -uninfected children. Non-infectious causes of DLD (n=5)(10%) were: Idiopathic Pulmonary Haemosiderosis (n=2), congenital lymphangiectasia (n=1), Surfactant C deficiency (n=1) and Langerhans cell histiocytosis (n=1).The complication rate was 12%; equal in HIV- infected and uninfected children. No mortality was associated with OLB.Conclusion: OLB had a diagnostic yield of 86% in children in a MIC. Unsuspected TB and unusual causes of non-infectious DLD were diagnosed in 22%, making OLB a useful diagnostic modality, in MIC.

ABSTRACT NUMBER / ABSTRAKNOMMER: 7

EFFECT OF CO-ADMINISTRATION OF LIGNOCAINE ON PAIN AND PHARMACOKINETICS OF INTRAMUSCULAR AMIKACIN IN CHILDREN WITH MULTIDRUG-RESISTANT TUBERCULOSIS

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Background: Multidrug-resistant (MDR) tuberculosis (TB) treatment generally includes at least 6 months of an injectable medication. These are painful and poorly tolerated. This study's objective was to evaluate the impact of co-administering lignocaine on pain and pharmacokinetics of intramuscular injections of amikacin in children. Methods: Children 8-18 years routinely receiving amikacin for MDR-TB treatment in Cape Town, South Africa, were eligible for this randomized blinded crossover trial. Participants received an exact 20mg/kg dose of intramuscular amikacin, with or without lignocaine, on two different days, and were randomized to sequence. Plasma samples were drawn pre-dose, and then 1, 2, 4, 6 and 8 hours post-dose. Pain was assessed by participants using the validated Wong Baker FACES pain scale (0 to 5) pre-dose, then immediately, at 30 and 60 minutes post-injection. Participants and staff completing evaluations were blinded to sequence. Results: Twelve children were included, median age 11.5 years (IQR 9.9-13.4y). The median area under the concentration time curve (AUC)0-8 of amikacin was 109.0μg*h/mL (IQR 84.7-121.3) with lignocaine compared to 103.3μg*h/mL (IQR 81.7-135.0) without lignocaine (p=0.814). The median maximum plasma concentration (Cmax) was 36.7μg/mL (IQR 34.1-40.5) with lignocaine vs. 34.1μg/mL (IQR 35.6-46.4) without lignocaine (p=0.638). Pain scores immediately after amikacin injection were significantly lower when lignocaine was co-administered: 1.0 (IQR 0.5-2.0) with lignocaine vs. 2.5 (1.0-4.0) without lignocaine (p=0.004). Pain scores after 30 minutes were 0.0 (IQR -0.5 to 0.5) with lignocaine, vs. 1.0 (IQR 0.0-1.5) without lignocaine (p=0.107) and after 60 minutes were 0.0 (IQR -1.0 to 0.5) with lignocaine vs 1.0 (IQR 0.0-1.0) without lignocaine (p=0.075).Conclusions: The co-administration of lignocaine with intramuscular injections of amikacin did not significantly alter amikacin AUC or Cmax, and resulted in significantly reduced pain immediately after the injection. TB programmes should routinely co-administer lignocaine with injectable TB medications to improve their tolerability in children.

ABSTRACT NUMBER / ABSTRAKNOMMER: 8

SAFETY AND TOLERABILITY OF LEVOFLOXACIN IN HIV-INFECTED AND –UNINFECTED CHILDREN TREATED FOR MULTIDRUG-RESISTANT TUBERCULOSIS

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Background: The fluoroquinolone levofloxacin is a key component of multidrug-resistant (MDR) tuberculosis (TB) treatment in children, and is included in two phase 3 trials of preventive therapy in MDR-TB exposed adults and children. Concerns about fluoroquinolone safety in children have persisted and there is limited prospective data in children, particularly with long-term use.Methods: We characterize levofloxacin safety and tolerability in HIV-infected and uninfected children aged 0-14 years routinely treated for MDR-TB in a prospective observational cohort study conducted in Cape Town, South Africa. Children with MDR-TB were routinely treated with 6-7 TB drugs, including levofloxacin (15-20mg/kg) in those <8 years and moxifloxacin in children >8 years. All had clinical and laboratory monitoring (ALT, bilirubin, potassium, creatinine) every 1-2 months and were followed until treatment completion. Adverse events (AEs) were graded according to standard critera (DAIDS) and attribution to levofloxacin assessed. Results: Seventy children were included, median age 2.1 years (range 0.4-7.3y); 38 (54%) were male, 12 (17%) were HIV-infected, and 16 (23%) were underweight-for-age. The total person-time of observation was 68.5 years (median time 11.6 months; IQR 9.2-14.7m). AEs were mostly mild (Grade 1 or 2); the most frequent AEs were vomiting (24 events in 19 children; 0.345 events/person-year) and ALT elevation (27 events in 22 children; 0.394 events/person-year). There were no arthritis events and only three Grade 1 arthralgia events in three chidren (event rate 0.044 events/person-year). There were three grade 3 and five grade 4 AEs; seven were ALT elevation of which none were attributed to levofloxacin (all resolved without complication) and one grade 3 headache was possibly related to levofloxacin. No AEs resulted in permanent levofloxacin discontinuation.Conclusions: Levofloxacin 15-20mg/kg was safe and well tolerated in children in long-term use, providing additional support for its inclusion in TB treatment and prevention regimens in children.

ABSTRACT NUMBER / ABSTRAKNOMMER: 9

ADVERSE DRUG REACTIONS IN PAEDIATRIC IN-PATIENTS IN A SOUTH AFRICAN TERTIARY HOSPITAL: A PROSPECTIVE OBSERVATIONAL STUDY

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Introduction: Paediatric patients have higher adverse drug reaction (ADR) rates than their adult counterparts partly because of a significantly higher rate of off-label use of medicines in this population.Prevalence data of ADRs in Sub-Saharan African children is limited. Objective: To describe the prevalence and nature of ADRs in paediatric (≤ 18 years old) in-patients at Tygerberg Hospital. Methods: We conducted a prospective study of paediatric patients admitted to the general and oncology wards to identify suspected ADRs. We included patients who were admitted for at least 24 hours during the 3 month study period. We collected demographic and clinical data. We assessed causality using the 10-question Naranjo probability scale and classified severity using the Hartwig severity scale. Results: We found that 18.4% (52/282) of patients had a total of 61 ADRs. The mean age of patients with ADRs was 3.4 years (range 9 days - 16.3 years). Of those with an ADR, 31% (16/52) were primarily admitted due to the ADR. The rate of ADRs was highest in oncology patients on chemotherapy 56.52% (13/23) followed by HIV infected patients on antiretroviral therapy (ART) 42.86% (9/21). We found that 17.5% (7/40) of patients treated for tuberculosis had ADR(s). There were 11.5% (7/61) severe, 45.9% (28/61) moderate and 42.6% (26/61) mild ADRs ranging from severe neutropaenia and drug induced liver injury to mild cutaneous rashes. There was no fatal ADR but 13.1% (8/61) ADRs were considered to be life threatening, 27.9% (17/61) necessitated and/or

prolonged hospitalisation and 31.1% (19/61) resulted in persistent or significant disability or incapacity. We found that 44.2% (23/61) ADRs were predictable.Conclusion: We found a prevalence (18.4%) of ADRs in paediatric in-patients at Tygerberg hospital. Thirty one percent of those with ADRs were admitted as a result of the ADR with a high proportion predictable and probably preventable.

ABSTRACT NUMBER / ABSTRAKNOMMER: 10

BURDEN, SPECTRUM AND IMPACT OF HEALTHCARE-ASSOCIATED INFECTION AT A SOUTH AFRICAN CHILDREN'S HOSPITAL

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Introduction: Healthcare-associated infection (HAI) is the most frequent complication of hospitalization. In most African countries paediatric HAI burden and impact is unknown and the influence of HIV infection is unquantified. Methods: Continuous prospective clinical and laboratory HAI surveillance using CDC/NHSN definitions was conducted on four wards at Tygerberg Children's Hospital, South Africa from 1 May to 31 October in both 2014/2015. HAI incidence, spectrum and impact were determined. Risk factors for HAI and -associated mortality were analyzed with multivariable logistic regression; excess length of stay was estimated using a confounder and time matching approach. Results: The risk of an HAI event was 31.1/100 admissions (95%CI 28.2-34.2) with incidence of 22.5/1000 patient days in wards [95%CI 19.9–25.3] vs 94.4 [95%CI 80.6–109.8] in the paediatric ICU. HAI events (n=417) complicated 325 hospitalizations including: hospital-acquired pneumonia (185; 44%), bloodstream [BSI] (112; 27%), urinary tract [UTI] (45; 11%), and surgical site infections (21; 5%). Rates of device-associated HAI in PICU were high: ventilator-associated pneumonia (15.9/1000 ventilator days); central line-associated BSI (12.9/1000 line days) and catheter-associated UTI (16/1000 catheter days). HAI was associated with PICU stay (OR 2.0, 95%CI 1.4-2.7), severe malnutrition (OR 1.6, 95%CI 1.1-2.1), HIV-infection (OR 1.7, 95%CI 1.1-2.7), HIV-exposure (OR 1.6, 95%CI 1.1-2.4), McCabe score 'fatal' (OR 2.0, 95%CI 1.4-2.8), co-morbidities (OR 1.6, 95%CI 1.2-2.1), indwelling devices (OR 1.9, 95%CI 1.2-3), blood transfusion (OR 2.5, 95%CI 1.6-3.8) and transfer-in (OR 1.4, 95%CI 1.04-1.8). Death (median 4 days from HAI onset) occurred in 24/325 (7.4%) hospitalizations vs 12/1022 (1.2%) HAI-unaffected hospitalizations ($p<0.001$). HAI increased healthcare costs by R5.6 million incurring additional antimicrobial usage (2365 days), laboratory investigations (3575 tests) and hospital stay (2275 days). Conclusion: HAI was frequent with significant morbidity, mortality and healthcare costs. Establishment of HAI surveillance and prevention programs for African children is a public health priority.

ABSTRACT NUMBER / ABSTRAKNOMMER: 11

THE COST EFFECTIVENESS OF TREATING PAEDIATRIC CANCER IN SOUTH AFRICA: A REVIEW OF TREATMENT COST FOR BURKITT

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In middle and low income countries, childhood cancer is rare when compared to trauma and infectious diseases. There is a paucity of literature regarding the cost and cost-effectiveness of treatment for paediatric cancers. Burkitt lymphoma (bl) is a fairly common paediatric cancer in south-africa. Optimal treatment and supportive care of bl translates to high cure rates. Methodsthe study is a retrospective, longitudinal descriptive audit and cost-effectiveness analysis. Data was collected

from all available records at tygerberg hospital and total direct cost for treatment and follow up was calculated. Using the who's 'choosing interventions that are cost-effective' guidelines, the disability adjusted years of life (daly) lost averted by treatment were calculated and divided by the total cost of treatment. The result was compared to the south-african gross domestic product (gdp) per capita and determined whether it meets the threshold of cost-effectiveness.resultsten patients treated for burkitt lymphoma between 2005 and 2010 were included in the study. The average direct cost was us$12829 per patient. A trend was found for treatment of late stage disease to be more expensive than early stage disease, as well as a less favourable prognosis of late stage disease, as expected. Treatment of hiv infected children with burkitt lymphoma were also well within the very cost-effective threshold.cost related to general supportive care, was by far the largest contributing factor with hospitalisation contributing 49% of the total cost. The average cost to avert 1 daly, was us$610.52, thus the average ratio to gdp per capita was 0.1:1, which indicates that treatment of bl in south-africa is well within the limits of being very cost effective (1:1).conclusioncost constraints should not be a limitation to treating children with burkitt lymphoma, even if they present with advanced stage disease or hiv infection

ABSTRACT NUMBER / ABSTRAKNOMMER: 12

MANAGEMENT OF FIRST TRIMESTER MISCARRIAGE IN A TERTIARY HOSPITAL IN CAPE TOWN, SOUTH AFRICA – A PROSPECTIVE OBSERVATIONAL STUDY

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Objective To assess the effectiveness and adverse events with surgical, medical and conservative management options in a prospective observational study of women with first trimester miscarriage presenting to a public gynaecology service. Design Prospective observational study Setting Tygerberg hospital, a public tertiary hospital in Cape Town, South Africa Population 157 women with stable and unstable first trimester miscarriage presenting to our acute, and early pregnancy service Methods Patients were included prospectively. Names were cross-checked with clinic and theatre registers, and information captured in Excel, and subsequently analysed with SPSS software package. Local ethical approval was obtained. Main outcome measures • Days until complete miscarriage • Proportion of patients completing the miscarriage with original method chosen • Complication rate Results 157 women were included in the study; 32% had surgical, 40% had medical and 28% had conservative management. Median days until complete miscarriage was 1 for surgical, 10 for medical and 18 for conservative. 100% of patients who started in the surgical group completed miscarriage in that category, 75% for medical and 18.4% for conservative. Complication rates showed an overall 10.2% blood transfusion rate, 5.1% infection rate, 1.3% had misoprostol side-effect rate and a 0.6% re-evacuation rate. Conclusion Surgical management is the quickest and most effective (median 1 day, range 1 -66), medical management longer (median 10 days, range 1 – 105 days), conservative longest at 18 days (range 1 – 66 days). Given the variability in duration and the number of people needing to change strategy, it is important to counsel patients so we can offer them the safest option in their social context. Surgical management has the highest complication rate, reflecting that this is the primary management for our unstable patients with sepsis and haemorrhage.

ABSTRACT NUMBER / ABSTRAKNOMMER: 13

ECHOCARDIOGRAPHIC ASSESSMENT OF LEFT VENTRICULAR FUNCTION IN PRE-ECLAMPSIA COMPLICATED BY PULMONARY OEDEMA – EARLY FINDINGS FROM THE LV IMPACT STUDY

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IntroductionAcute pulmonary oedema as a complication of pre-eclampsia carries significant risk to mother and foetus, and the cause is unknown. Published data on echocardiographic (echo) findings in this setting suggest left ventricular (LV) systolic and diastolic dysfunction may play an important role [1,2]. HypothesisWe hypothesise that acute left ventricular dysfunction is significantly associated with the presence of pulmonary oedema which is reversed during the post-partum period.MethodsAll patients presenting to Tygerberg Hospital with pre-eclampsia and pulmonary oedema are being prospectively enrolled. An echo, including detailed LV systolic and diastolic function assessment, is performed as soon as possible after diagnosis, again pre-discharge, and 6 weeks later. Two control groups will be enrolled: pre-eclampsia without pulmonary oedema, and no pre-eclampsia. ResultsEight cases (3 pre-delivery; 5 post-delivery) have been enrolled thus far with a mean age of 30.5 years. There was mild LV dilatation in 2/8 cases (25%), and mild LV hypertrophy in 2/8 cases (25%). LV diastolic dysfunction was demonstrated in 7/8 (87.5%) cases. LV systolic dysfunction when assessed by biplane ejection fraction was seen in 2/8 (25%) cases. One patient had a completely normal echo with normal LV size, no LVH and normal systolic and diastolic function. This group of patients is due for 6-week follow up echo in the near future. ConclusionsInitial results suggest diastolic dysfunction is the dominant echo finding in patients with pre-eclampsia and pulmonary oedema. LV systolic dysfunction, when measured by ejection fraction, occurs less frequently. References1. Desai DK, Moodley J, Naidoo DP, Bhorat I. Cardiac abnormalities in pulmonary oedema associated with hypertensive crises in pregnancy. Br J Obstet Gynaecol. 1996 Jun;103(6):523-8. PMID: 8645643. 2. Gandhi S et al. The Pulmonary Edema Preeclampsia Evaluation (PEPE) Study. J Obstet Gynaecol Can. 2014 Dec;36(12):1065-70. PMID: 25668041.

ABSTRACT NUMBER / ABSTRAKNOMMER: 14

INVESTIGATING THE DIAGNOSIS OF GESTATIONAL DIABETES: A DESIGNER BREAKFAST PUT TO THE TEST.

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Introduction
Gestational Diabetes Mellitus (GDM) has become common due to the obesity epidemic. The Western Cape guideline, advocates selective screening and provides two options for diagnosis. The first is the 75g Oral Glucose Tolerance Test (OGTT) with fasting and 2-hour values. It is unpleasant for patients and requires a laboratory. The alternative Glucose Profile (GP) is a pragmatic test comprising a fasting capillary glucose measurement, consumption of a non–standardised glycaemic load (patient's breakfast) and a 2-hour capillary glucose measurement. This study aimed to analyse the glycaemic content of the patient-provided breakfast; design/identify a standardized, available user-friendly alternative to the 75g OGTT; and compare venous and capillary glucose values.
Methods The "breakfasts" of 50 GP's were carefully analysed by a dietician. This information was used to identify a standardised product for the "designer breakfast" during a GP. Next, a randomized, cross-over design was utilised in 50 new screen positive patients with each patient as her own control. Patients were randomised to an OGTT or GP. One week later, before intervention, the alternative test was performed. Fasting, 1- and 2-hour venous and capillary values were measured. Patients with overt diabetes were excluded from the study.
Results: Meals consumed during the GP varied widely in carbohydrate content (15g-145g). Because the alternative to the 75g OGTT needed to be a standardized, available product, the Future Life Excel® packaged meal, available on local tender was utilized. The fasting and 2-hour capillary glucose values measured during the OGTT correlated strongly with the laboratory venous samples (Pearson's 0.74; $p < 0.001$ at both time intervals). The 2-hour capillary glucose values obtained for

the "designer" GP showed satisfactory correlation to the current gold standard OGTT (Pearson's 0.54; p <0.001).
Conclusions: The "designer" breakfast meal provides a user-friendly, accurate alternative option to diagnose GDM.

ABSTRACT NUMBER / ABSTRAKNOMMER: 15

GALACTOGOGUES: A CROSS-SECTIONAL DESCRIPTIVE STUDY AMONG PATIENTS VISITING INTERNATIONAL BOARD CERTIFIED LACTATION CONSULTANT PRIVATE PRACTICES IN CAPE TOWN

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Abstract BackgroundFailure to exclusively breastfeed is often caused by a perception of insufficient breast milk supply. Galactogogues are frequently prescribed in these circumstances, but this is supported by sparse scientific data with safety concerns for both mother and infant. The exact extent of galactogogue use in South Africa is not well known.ObjectiveWe aimed to assess breastfeeding behaviour, galactogogue use and perceived galactogogue side effects. MethodsWe administered a self-developed, expert reviewed questionnaire in 5 International Board Certified Lactation Consultants (IBCLC) private practices within the Cape Town Metropole. All clients attending during an 8 week period were invited to participate. ResultsWe included data from104 participants. An exclusive breastfeeding rate of slightly more than 50%, associated with greater parity (p=0.029), was found. Perceived lack of breast milk predicted galactogogue use (p=0.013). There was a high prevalence of galactogogue use (54%) with 80% of these participants using non-prescription medication. Sulpiride was the most common prescription medication used. Increased milk production was reported by 41% (n=23) of galactogogue users while 30% (n=17) reported no effect. Most reported side effects were minor. ConclusionPrevalence of galactogogue use exceeded other published data. Sulpiride was most frequently prescribed, despite not being recommended during breastfeeding. A large group of participants reported poor efficacy. The effect of vaginal delivery and immediate skin-to-skin contact after delivery on milk production might be smaller in a motivated population than previously reported. Health care practitioners should acknowledge breastfeeding mothers' concerns regarding insufficient milk supply and emphasise correct breastfeeding technique.

ABSTRACT NUMBER / ABSTRAKNOMMER: 16

RETINOPATHY OF PREMATURITY SCREENING CRITERIA AND WORK LOAD IMPLICATIONS AT TYGERBERG CHILDREN'S HOSPITAL, SOUTH AFRICA: A CROSS-SECTIONAL STUDY

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Background. Screening guidelines for retinopathy of prematurity (ROP) used in high-income countries are not appropriate for middle-income countries, and screening requirements may vary even between units within one city. Objective. To determine optimal ROP screening criteria, and its workload implications, for Tygerberg Children's Hospital (TCH), Cape Town, South Africa.Methods. This cross-sectional study included premature infants screened for ROP at TCH from 1 January 2009 to 31 December 2014. Logistic regression analysis for prediction and classification were performed. Predictors were birth weight (BW) and gestational age (GA). Endpoints were clinically significant ROP (CSROP) and type 1 ROP (T1ROP). Results. Of 1 104 eligible infants, 33.4% had ROP (CSROP 9.1%, T1ROP 2.5%). All T1ROP infants received laser therapy. The number of screening examinations was inversely correlated with GA and BW. The number needed to screen to identify one infant requiring

treatment was 41 (entailing 83 examinations, 4 screening hours, one technician and three doctors). Screening infants with a GA of ≤28 weeks or a BW of <1 000 g would have detected all infants with T1ROP but missed two outliers with CSROP. These outliers would only have been detected with a GA of ≤32 weeks or a BW <1 500 g.Conclusions. Detection of infants with T1ROP is resource intensive. Larger infants require screening to include a few outliers, but they require fewer examinations than smaller infants. Making local screening criteria narrower on the basis of a limited evidence base may be dangerous. Risk factors for CSROP in larger infants need to be researched.

ABSTRACT NUMBER / ABSTRAKNOMMER: 17

KNOWLEDGE ABOUT NEONATAL JAUNDICE IN POSTNATAL MOTHERS AT TYGERBERG HOSPITAL, SOUTH AFRICA

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BACKGROUND: Neonatal Jaundice is a very common condition in newborns. Jaundice refers to the yellowish discoloration of the sclera and skin and occurs as a result of hyperbilirubinemia. Jaundice is usually a benign condition in the newborn. However, in some cases severe neonatal jaundice can lead to kernicterus or even death in newborns. In many settings mothers and their newborns are usually discharged home within the first 24 hours, and before jaundice usually appears. Most newborns will develop jaundice while they are already at home. Therefore, mothers play a crucial role in recognizing jaundice and taking the correct steps towards the treatment.OBJECTIVES: We aimed to assess the knowledge of neonatal jaundice amongst postnatal mothers at Tygerberg Hospital. METHOD: In this descriptive cross-sectional study, we recruited a total of 407 mothers. The mothers were interviewed using a structured questionnaire. RESULTS: About 75% of the mothers have heard the word jaundice. However, more than 60% did not know what it is and how it presents in the newborn. Up to 72% did not know how jaundice is treated in the newborn. About 63% mothers didn't know the causes of jaundice. For those that knew about neonatal jaundice, up to 70% thought that jaundice is caused by eating oranges or curry during pregnancy, and so they avoided oranges or curry during the pregnancy. Up to 90% did not know of any potential complications of jaundice in the newborn. CONCLUSION: This study reveals that the post-natal mother among our study population limited knowledge of neonatal jaundice. It is therefore crucial for health care providers to give more health education on neonatal jaundice during their antenatal visits. This will help in the early recognition and prompt treatment of jaundice in newborns to prevent potential complications.

ABSTRACT NUMBER / ABSTRAKNOMMER: 18

INTENSIFIED PMTCT INFLUENCES THE RATE AND EVENTUAL OUTCOME OF INDETERMINATE HIV-1 PCR RESULTS

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Background Indeterminate HIV PCR results are defined by preset laboratory criteria. They may represent true low-positives (very early infection or suppression by antiretroviral drugs) or non-specific amplification signals. We aimed to investigate and describe changes in the rate of indeterminate HIV PCRs as well as their eventual outcomes associated with intensifying PMTCT regimens in the Western Cape, South Africa. Methods Routine PCR data from June 2009 to July 2015 was extracted from the laboratory information system, analysed using Microsoft Excel and LinkPlus software and categorised by WHO PMTCT regimen (Maternal ART at CD4<200 cells/mm3 ["ART<200"], WHO Option A/B+). PCRs were performed with the Roche CAP/CTM HIV-1 Qual Version 1 or Version 2 tests. We looked at first PCRs in patients younger than 12 months of age and follow-up PCRs for patients with indeterminate initial PCR results. Results The dataset comprised of

47,419 patients tested at a median age of 45 days of life (IQR 42-67 days). The rate of indeterminate PCR results decreased significantly from ART<200 to Option B+ implementation (p<0.001), and using the Version 1 assay, significantly more patients with indeterminate PCRs had follow-up positive PCRs with Option B+ compared to ART<200 or Option A (64.1% vs. 14.4%, p<0.001) at a median of 28 days later. Discussion In the context of intensified PMTCT regimens, clinicians should regard indeterminate HIV PCR results with a high index of suspicion of representing true infections. Such patients should be investigated further with additional virological tests as per national guideline. However, as indeterminate results create uncertainty during patient management, laboratory criteria defining an indeterminate result should be improved for the Roche Version 2 assay to decrease the number of indeterminate results which are reported.

ABSTRACT NUMBER / ABSTRAKNOMMER: 19

MALNUTRITION-RELATED MORBIDITY AND MORTALITY IN HIV-EXPOSED INFANTS OF MOTHERS ENROLLED IN THE PMTCT PROGRAMME AT A NAMIBIAN DISTRICT HOSPITAL: THE ROLE OF INFANT FEEDING PRACTICES

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Background: Optimal infant feeding practices are critical to the prevention-of-mother-to-child-transmission (PMTCT) of HIV. Multiple, complex factors influence infant nutrition, emphasizing the need for appropriate interventions to prevent malnutrition, especially in these vulnerable populations. Aim: To examine the association between infant feeding practices (birth-24 months) and related socio-demographic, socio-economic and medical factors, and risk of morbidity and mortality from malnutrition in HIV-uninfected babies born to HIV-infected mothers. Methods: In a case-control design, HIV-uninfected infants born to PMTCT programme-enrolled mothers (January 2011 to January 2013) were randomly selected from maternity records at a district hospital in Namibia. Cases comprised infants who suffered morbidity or mortality from malnutrition, and controls, infants born during the same period, but not suffering morbidity or mortality from malnutrition. Of 97 identified mother-infant pairs, 82 (27 cases, 55 controls) could be located and consented to participate. Data were obtained by researcher-administered questionnaires to all included mothers, and from maternity medical records and Child Health Passports. Data included socio-demographics, antenatal care and infant medical history of mother-infant pairs, and 34 detailed questions on infant feeding practices, adapted from an existing questionnaire. Results: Binary regression analysis showed that for every one year increase in mother`s age, the odds of being a case decreased by 36% (p=0.067; 95%CI 0.396 - 1.031) and for every one unit increase in socio-economic status score, the odds of being a case decreased by 29% (p=0.062; 95%CI 0.499 - 1.017). There was a six-fold increase in the odds of being a case for every one additional infant born before the current infant (p=0.074; 95%CI 0.837 - 45.981). Every additional month of breastfeeding reduced the odds of being a case by 83% (p=0.014; 95%CI 0.043 - 0.697). Conclusions: To improve malnutrition-related morbidity and mortality, PMTCT programmes should focus on breastfeeding education, family planning and maternal socio-economic circumstances.

ABSTRACT NUMBER / ABSTRAKNOMMER: 20

LONG TERM NEURODEVELOPMENTAL OUTCOMES ON EARLY LIMITED OR DEFERRED CONTINUOUS ANTIRETROVIRAL THERAPY: EVIDENCE FROM THE CHER TRIAL

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Objective:To compare the neurodevelopment over 5 years of children on different antiretroviral treatment (ART) strategies from the CHER trial.Design: HIV-infected infants <12 weeks of age with CD4%>25% were randomised to: deferred ART (ART-Def), immediate ART for 40 weeks (ART-40W) or 96 weeks (ART-96W) with subsequent interruption until immunologic/clinical progression. HIV-exposed uninfected (HEU) and HIV-unexposed (HU) children were enrolled for comparison.Methods: The Griffiths mental development scales (GMDS) were performed at 11, 21, 30, 42 and 60 months, and the Beery-Buktenica developmental tests for visual motor integration at 60 months, on Cape Town participants. Groups were compared over time using mixed model repeated measures. Results: Study participants included 28 ART-Def, 35 ART-40W, 33 ART-96W CHER children and 34 HEU and 39 HU controls. GMDS scores were similar between the five groups in all subscales except for locomotor and general Griffiths quotients. Mean locomotor quotients ranged between 89.5 -105.9 at 11 months and 93.2-98.7 at 60 months (interaction p<0.001); mean general Griffiths quotients ranged between100.2-107.3 at 11 months and 81.8 - 84.7 at 60 months (interaction p=0.02). At 60 months, the mean quotients of the five groups were similar in each GMDS scale. Beery visual perception scores were significantly lower in HIV+ children (mean standard scores: 75.8 ART-Def, 79.8 ART-40W, 75.9 ART-96W, 84.4 HEU and 90.5 HU (p<0.01)).Conclusions: Neurodevelopmental outcomes at were similar at 5 years in HIV+ children on early limited therapy and uninfected controls. Lower visual perception scores in HIV+ children warrant further investigation. ∏

Posters/ Plakkate

ABSTRACT NUMBER / ABSTRAKNOMMER: 21

EXPLORING STAKEHOLDER COMMITMENT AND CAPACITY TO ADDRESS INFANT AND YOUNG CHILD NUTRITION IN THE CAPITAL OF THE BREEDE VALLEY, WESTERN CAPE PROVINCE, SOUTH AFRICA

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Experience and evidence exist on multi-stakeholder processes (MSPs) in nutrition at global - and national levels and specifically about how to build and assess commitment and capacity to address infant and young child nutrition (IYCN) at these levels. However, little experience and documented evidence exist for such processes at local level.This study followed a qualitative study design and included selected participatory research methods. Semi-structured interviews with 27 key stakeholders were held to explore their perspectives, commitment and capacity concerning IYCN.

Hereafter, during a workshop, stakeholder relationships and power related to IYCN governance were mapped. Lastly, focus group discussions were conducted to reflect on the research process. Main themes from the overall research findings included: the value of local knowledge and information; appeal of the 1000 days message and its link to development; the urgent need for IYCN advocacy; value of stakeholder engagement and seeing the broad IYCN stakeholder landscape; the need for multi-sectoral work, while recognising the difficulty in functioning across sectors; realising the capacity inherent in "people" as a resource, need for a "whole of society approach" in advancing the IYCN agenda and the importance of strategic capacity in local forums, combined with national legislation, to advance action for IYCN.We conclude that a detailed exploration of initial stages of a MSP is a valuable practice - and research model to create awareness of IYCN as a development issue of crosscutting importance at implementation level. Such an approach, appropriately adapted to local conditions, could be helpful in scaling-up efforts to improve IYCN at sub-district level elsewhere in the country. Follow-on research should involve joint planning and concrete action to improve IYCN in the Breede Valley.

ABSTRACT NUMBER / ABSTRAKNOMMER: 22

MANAGING CHILDHOOD TB IN A HIGH BURDEN DISTRICT IN SOUTH AFRICA: GETTING THE BASICS RIGHT

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Background The paucibacillary nature of childhood tuberculosis and challenges in obtaining samples; result in the majority of children being treated for TB based on clinical criteria. The South African National TB Program (SANTP) has established guidelines for diagnosis and management of childhood TB. We evaluated the implementation of these guidelines at primary care clinics (PCC) in the Eastern Cape Province, South Africa.DesignRetrospective folder review of children ≤14 years of age, recorded in the Electronic TB register (ETR) during 2014 in six high-burden PCC.ResultsA total 280 children (13% of total caseload) were recorded in ETR; 208 (74%) ≤ 5years of age, 46 (16.5%) HIV-infected and 268 (96%) with pulmonary TB. Folders for 252 (90%) were reviewed.Diagnostic symptoms and signs were documented for 18(7%) cases; information on TB exposure in 44(18%) children. HIV status was documented in 211(84%); only 23/36(64%) infected children were documented to have started antiretroviral therapy. Only 27/66(41%) of children aged 6-14 years had samples taken for bacteriological testing. Of 209 children (83%) who had weight and treatment dose recorded at treatment initiation, only 122 (58%) received the correct weight-banded dosage. Weight at the start of continuation phase was documented in 133 (53%). Favourable treatment outcomes were documented in 192(75%) of children.DiscussionResults highlight important policy-practice gaps. Lack of systematic documentation of clinical findings and decision-making, i.e. weight and laboratory investigations; impacts negatively on optimal treatment, and monitoring of treatment response in children. Despite 75% of children completing treatment, incorrect dosing of TB treatment could have a negative impact on long term treatment success in terms of relapse and resistance.New tools including better diagnostics and more child-friendly regimens will fail to have significant impact on childhood TB globally if basic TB management principles in children are neglected

ABSTRACT NUMBER / ABSTRAKNOMMER: 23

TB KIDS E-TRAINING: OPERATIONAL IMPLEMENTATION OF THE UNION'S ONLINE CHILDHOOD TB COURSE FOR HEALTH CARE WORKERS IN SOUTH AFRICA.

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Background We evaluated the feasibility of implementing a computer-based training course, and its impact on knowledge amongst HCWs in a high-burden TB district in the Eastern Cape Province, South Africa using the free interactive childhood TB training course developed by the International Union against Tuberculosis and Lung Disease (Union).DesignTwo-day training sessions were convened at a central computer laboratory (March-August 2015). Participants completed the course independently at their own pace. Knowledge evaluation was completed pre- and post-training with 60 multiple-choice questions. ResultsA total of 221 HCWs from all primary care service areas were enrolled and 220 (99.5%) completed both pre-and post-test evaluations. The mean age was 42 years (SD 11.8); 200(91%) were female, 60(27%) currently worked in TB services; only 48(22%) had a personal email account.The mean baseline knowledge was 65%(SD 8%); the mean knowledge increase after training was 8% (95% CI 7.0-8.8,$p<0.001$). Nurses below 40 years of age and those not working in TB services gained more knowledge than other nurses (3.1%; 95% CI1.3-5.0,$p<0.001$ and 3.7%; 95%CI1.8-5.7,$p<0.001$ respectively). Having a personal email account (proxy for IT exposure) did not have a significant impact on learning. Limited and unstable Internet capacity did not affect training; all participants were able to complete a downloadable version of the course.DiscussionGiven that basic IT requirements can be met, this course proved to be a versatile option that improved HCW knowledge of childhood TB. Trainee age may be an important factor contributing to technology use and effective learning.IT access may be an obstacle in some settings. Attention should be given to evaluate setting-specific resources and requirements before rollout of computer-based training.Evaluation of knowledge translation into clinical practice is required. The impact of course facilitation for contextualization and consolidation of knowledge is important to consider in the future.

ABSTRACT NUMBER / ABSTRAKNOMMER: 24

KEEPING KIDS IN CARE: AN OBSERVATIONAL STUDY DESCRIBING CUMULATIVE PROGRAMME FAILURE IN A PAEDIATRIC ARV CLINIC AND THE ROLE STAKEHOLDERS COULD PLAY IN IMPROVING TREATMENT OUTCOMES

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Background: The burden of paediatric HIV in South Africa is extremely high with an estimated 410 000 children living with HIV at the end of 2012. Antiretrovirals (ARVs) are now widely accessible in South Africa and the clinical emphasis has shifted from diagnosis and initiation of treatment to adherence and retention in care. Our study aimed to describe cumulative virological failure rate amongst children on ARVs in a peri-urban clinic of the Western Cape, and to suggest ways in which clinics and associated partners could improve treatment outcomes. Design/Methods: The study was conducted by the non-government organisation HOPE Cape Town at Delft Community Health Centre. A retrospective file audit determined the cumulative virological failure rate. Interviews were

conducted with the 12 staff members most involved with this patient group, 22 caregivers and 3 children, in order to better understand the factors influencing adherence and retention in care. Results: Since the clinic started in 2008, 22% of children have been lost to follow up. This constitutes half the cumulative virological failure rate. Both staff and caregivers consistently identify long pharmacy queues, difficulty getting time off work and unpalatable ARVs as barriers to adherence. Staff suggestions for improving care include the consistent use of adherence aids, better education of caregivers and the establishment of support groups. Caregivers repeatedly requested support groups, as well as "same day" appointments for caregivers and children. Concerns were expressed by many caregivers regarding home visits by clinic staff. Conclusion: Clinics and their partners could reduce the cumulative virological failure rate in paediatric ARV clinics by actively tracing defaulters, improving patient and staff education, providing support groups and reducing long queuing times. This may be the most economical and effective method of reducing the cumulative virological failure rate.

ABSTRACT NUMBER / ABSTRAKNOMMER: 25

CLINICAL CHARACTERISTICS AND DIAGNOSTIC PRACTICES OF CHILD TUBERCULOSIS CASES MANAGED AT A HIGH BURDEN, DISTRICT LEVEL HOSPITAL IN CAPE TOWN, SOUTH AFRICA.

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Background:The Khayelitsha sub-district has the highest burden of Tuberculosis (TB) in the City of Cape Town. During 2014 alone, Khayelitsha District Hospital (KDH) had 4200 paediatric admissions. We characterised the paediatric TB burden and routine management practices at this newly established (2012) hospital.Methods: All children routinely diagnosed with TB at KDH during January-June 2014 were identified through a TB health system-strengthening project. Data was extracted from hospital folders, and compared to recommendations from 2013 South African National TB Program (SANTP) guidelines.Results:Of 102 identified children, 99(97%) folders were reviewed. More than two thirds [71(70%)] were ≤2 years old; 69(67%) male; 94(94%) with pulmonary TB and 19(19%) with extra-pulmonary TB (2 milliary TB and 1 TB meningitis case). Of 96(97%) children tested, 19(20%) were HIV-infected; 11/19(58%) newly diagnosed with HIV and TB. Seventeen (17%) children had severe malnutrition. Household TB exposure was documented in 38/96(40%) however only 5/36(14%) eligible child contacts received isoniazid preventive therapy.Most children had symptoms suggestive of TB [coughing: 80(81%); failure to thrive/weight loss: 78(79%)] and 90(91%) had chest x-rays suggestive of TB. Bacteriological investigation was completed in 92(93%) children: 10(11%) had Xpert MTB Rif, 90(91%) had mycobacterial cultures and 8/92(9%) had both. Only 11/90(12%) children were culture positive, and 3/10(30%) Xpert positive. Resistance were confirmed in 2 cases (1 INH mono-resistant culture; 1 Rif-resistance Xpert).Most children 89(90%) were discharged to community clinics for further management; 79(89%) children were scheduled for hospital follow-up to review culture results.Discussion:A young, acute on chronically ill cohort with substantial co-morbidities, further complicated by delayed HIV diagnoses and missed opportunities for TB prevention were observed at this district-level hospital.Overall management were consistent with SANTP guidelines however, improved utilization of Xpert driven laboratory algorithms may decrease follow-up burden and allow for rapid screening of drug resistance.

ABSTRACT NUMBER / ABSTRAKNOMMER: 26

A DESCRIPTIVE PROFILE OF PRIMARY CAREGIVERS OF HIV-INFECTED CHILDREN IN THE WESTERN CAPE, SOUTH AFRICA

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Background: Antiretroviral therapy rollout in South Africa allows HIV+ people to live significantly longer. The growing number of HIV+ children increases the burden on society to provide primary caregivers, who have a demanding and time-consuming responsibility to provide quality care to these children. The purpose of the study was to create a descriptive profile of primary caregivers of HIV+ children in the Western Cape.Methods: This cross-sectional study utilised data from a Caregiver Health Questionnaire (CHQ) completed by medical doctors during consultation with primary caregivers of 7-year-old children living with HIV. The CHQ provides background information and insight into the caregiver's mental and physical health status, financial and social support, and any influence this may have on the child's adherence to ARV medication. These children were on a follow-on study of the Children with HIV early antiretroviral (CHER) trial conducted at the Family Clinical Research Unit, Tygerberg Hospital, Cape Town, South Africa. Descriptive statistics were used to generate a profile of the caregivers. The biopsychosocial model served as the theoretical framework. Results: The 79 caregivers in the study were all female, mean age of 35.1 years (range 23-55). The majority were Black Africans (84.8%), biological mothers (82.3%) and unemployed (59.5%). Only 26 (32.9%) biological fathers were living with the child. The HIV-infected children's average age was 7 years, 54.4% were girls. The children's WHO HIV disease stage was stage 4 in 49.4% and stage 3 in 40.5%.Conclusion: The caregivers are generally young, African Black females and are generally the biological mothers of the HIV-infected children. The majority were HIV-positive, unemployed and lacked financial stability, and father figures were primarily absent and not supportive. This study suggests a need for support on several levels to assist the caregivers in performing their caring role of HIV-infected children.

ABSTRACT NUMBER / ABSTRAKNOMMER: 27

AN EXPLORATORY STUDY ON ADHERENCE TO EXCLUSIVE BREASTFEEDING WITH ANTIRETROVIRAL THERAPY INTERVENTION AMONG HIV-INFECTED MOTHERS IN SOUTH AFRICA AND NIGERIA.

JUDY GATEI (UNIVERSITY OF CAPETOWN - DIVISION OF IMMUNOLOGY)

Background: Even in the presence of HIV infection, exclusive breast feeding (EBF) is recommended for the first six months of an infant's life. However, formula-feeding or mixed feeding is still common. We aimed to assess breast-feeding practices among HIV-positive mother-infant pairs in South Africa and Nigeria.Methods: Data for analysis was drawn from the INFANT Study, a prospective cohort study of HIV-infected breastfeeding mothers and their HIV-exposed uninfected infants (April 2013 to March 2015). Mothers were recruited from site B Clinic in Khayelitsha, South Africa and Plateau State Specialist Hospital, Nigeria. Descriptive statistics were used to characterize breastfeeding practices and logistic regression using odds ratios (OR) and 95% confidence intervals (CI) was used to identify factors associated with EBF for the first 6 months.Results: Overall 110 (32.7%) of 336 mothers practiced EBF up to 6 months. Among the sample, 246 (40%) of mother in Nigeria and 90 (18%) in South Africa EBF their infants.Compared to peri-urban South African, more rural Nigerian women

(n=246) EBF ((OR: 1.60, 95% CI: 0.84-3.32). The mean age of the mothers was 30 years (SD 5.02)most of them had access to amenities such as running water, electricity and refrigerators. The majority (86%) of mothers had more than one baby and 62% of them had previously breastfed their last baby. Multigravidas 87% comprised of the sample in Nigerian and 82% in South Africa. The mean birth weight for was 3024g (SD 404) with a gestational age mean of 39 weeks (SD 2.9).No standard baseline demographics were significantly associated with EBF. Conclusion: Despite recommendations to promote EBF for HIV-infected mothers and their exposed infants, many HIV-infected mothers do not EBF for the first six months of life. There is an urgent need to understand factors that may influence, develop strategies that improve HIV-infected women's adherence to EBF.

ABSTRACT NUMBER / ABSTRAKNOMMER: 28

VERY LOW UPTAKE OF ROUTINE INFANT DIAGNOSTIC TESTING FOLLOWING HIV PCR TESTING AT BIRTH

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Background: There is growing emphasis on testing HIV-exposed infants at birth to detect intrauterine HIV infections. However, birth testing may potentially reduce uptake of routine early infant diagnostic testing (EID) around 6 weeks of age. As there are no published data, we examined the association between birth PCR and subsequent EID testing in the Western Cape where >70% 6-week EID coverage is expected.Methods:Data on all HIV PCR tests conducted in the province were accessed from the laboratory databases. Infants with birth PCRs (0-7 of age) and subsequent EID testing (8-182 of age) were linked probabilistically; sensitivity analyses were used to maximise linkage of birth to subsequent tests. Two periods of birth testing policies were compared: discretionary testing by clinicians (DT; 01/2009-03/2014) and testing of all 'high risk' pregnancies per provincial protocol (HR; 04/2014-06/2015). Results:Overall 3322 neonates received birth testing (80% within three days of life). Throughout most birth tests were undertaken from obstetric hospitals, though the proportion of birth tests from primary care facilities increased from 11% under DT to 33% under HR testing. Birth PCR positivity rates decreased from 6% in 2009 to 1.6% in 2015 (p=0.001). Of children with negative birth PCR results, only 49% had any evidence of a follow-up EID test, decreasing to 43% when restricted to a window around prescribed EID testing. No differences in follow-up testing rates or mean age at retesting under DT vs HR testing policies were observed (p=0.506 and 0.112, respectively). Worryingly, only 59% of infants with positive follow-up test results were tested from primary healthcare settings.Discussion:Follow-up EID resting rates in infants testing PCR negative at birth are substantially lower than local estimates of 6-week EID coverage. These data suggest that implementation of birth testing will require particular care to avoid undermining postpartum EID services.

ABSTRACT NUMBER / ABSTRAKNOMMER: 29

FAVOURABLE OUTCOME IN A CHILD WITH GLUTARIC ACIDURIA AND HIV INFECTION

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PAEDIATRICS AND CHILD HEALTH), BARBARA LAUGHTON (CHILDREN'S INFECTIOUS DISEASES CLINICAL RESEARCH UNIT - DEPARTMENT OF PAEDIATRICS AND CHILD HEALTH)

Introduction: Few cases of GA1 have been reported in the black population in South Africa(SA). Late recognition is associated with poor neurodevelopmental outcome; therefore early diagnosis is essential for a favourable outcome. In contrast, HIV is very common in SA. Neurodevelopmental delay and encephalopathy are common complications of HIV. In such a setting it is important to remember that dual diagnosis of HIV and GA1 can occur. Case report: We present a South African child of Xhosa descent enrolled in the Children with HIV early antiretroviral therapy (CHER) trial at six weeks of age and in a neurodevelopmental sub-study. His Viral load (VL) was log >6.7 and CD4 25%. ART comprised Zidovudine, Lamivudine and Lopinavir/Ritonavir, with excellent response. He developed a focal seizure at sixteen months of age after a fall. Neuroimaging showed significant brain atrophy, asymmetrical white matter hyperintensities and focal haemosiderosis in right Sylvian fissure region. As these findings were not in keeping with HIV encephalopathy, a metabolic screen on urine was requested, suggesting GA1. Confirmation was by genetic testing (A293T mutation). He began L-carnitine and a low protein and lysine free tryptophan reduced diet. ART was unchanged. At 21 months he developed pulmonary tuberculosis requiring 6 months treatment. Lipoatrophy was noted when he was 7 years old and Abacavir replaced Zidovudine.Results: Serial neurodevelopmental and neurocognitive testing scores were similar to healthy neighbourhood controls except for mild language delay at 3½ years. His neuropsychological test results at age 9 years were similar to neighbourhood controls: Kaufman Assessment Battery for children Mental Processing Index of 74 and Nonverbal Index of 74.Conclusion: Despite many health challenges, early detection of GA1 was pivotal for a favourable outcome. This infant was perhaps fortunate to be HIV-infected and co-enrolled both on early ART (ahead of the guidelines) and a neurodevelopmental sub-study.

ABSTRACT NUMBER / ABSTRAKNOMMER: 30

HIV ENCEPHALOPATHY WITH BILATERAL LOWER LIMB SPASTICITY: UPPER LIMB MOTOR FUNCTION AND LEVEL OF ACTIVITY AND PARTICIPATION

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Background:HIV encephalopathy (HIVE) is the most common neurological manifestation of HIV in children and bilateral lower limb (BLL) spasticity often forms part of an HIVE diagnosis. Little is known about upper limb involvement and day-to-day function in the children affected, therefore the aim of the current study was to describe (i) upper limb motor function and (ii) level of activity and participation in children with HIVE and BLL spasticity.Methods:Thirty children with HIVE and BLL spasticity between 5 and 12 years old were recruited, along with 15 typically-developing (TD) children. Upper limb motor function was assessed using the Purdue Pegboard and level of activity and participation using the Computer-Adapted Pediatric Evaluation of Disabilities Inventory (PEDI-CAT). Outcomes were compared between the groups using a Mann-Whitney test.Results:The HIVE group was comprised of 14 boys and 16 girls (mean age [SD]: 8y8mo [2y2mo], Gross Motor Function Classification System (GMFCS) level I (n=10), II (n=11) and III (n=9)) and the TD group was comprised of 8 boys and 7 girls (mean age 8y8mo: [2y3mo]). The HIVE group had significantly poorer scores than the TD group for all pegboard tasks and all PEDI-CAT domains ($p \leq 0.004$). However, there was noticeable individual variation in scores across all GMFCS levels.Conclusion: Ambulant children with HIVE and BLL spasticity had significantly poorer upper limb motor

performance and lower levels of activity and participation when compared to TD children at a group mean level. Although GMFCS level III tended to have the lowest functionality, there was noticeable individual variation across all levels of gross motor ability. These findings suggest that an assessment of upper limb motor function may form part of optimal care for this population.

ABSTRACT NUMBER / ABSTRAKNOMMER: 31

IS GENOTYPING USEFUL IN NEONATAL DIABETES MELLITUS?

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Background: Over the years several patients with neonatal diabetes mellitus (NDM) have presented at Tygerberg hospital(TBH). Little is known about geno-and phenotyping of this condition in the South African context.Method: A case series of 5 patients with Diabetes Mellitus diagnosed under the age of 12 months at TBH(2007-February 2016) .Genotyping was performed at the molecular genetics laboratory at the University of Exeter medical school in the UK. Patient's clinical information ,treatment and progress was extracted from medical records at Tygerberg hospital. Results: Patients 1 is an 8 year old female with uniparental paternal disomy of chromosome 6 and phenotypically transient NDM, she spontaneously went into remission but re-developed diabetes mellitus again at the age of 7 years and is currently on a modified conventional regimen of NPH and Regular insulin. Patient 2 is an 8 year old female in whom mutations in both the KCNJ11 and ABCC8 genes were detected and as this involves the KATP channel activating mutations of the Kir6.2 subunit, she was transferred successfully onto oral sulphonylureas. Patient 3 is a 1 year old male who is heterozygous for a missense INS mutation, p.G47V, phenotypically has permanent NDM and treated with NPH insulin .Patient 4 is a 3 year old female and heterozygous for INS missense mutation,p.A24V, phenotypically has permanent NDM and is on a modified conventional regimen with NPH and regular insulin. Patient 5 is a 21month old female ,who presented with NDM and hypoparathyroidism. She was suspected to have DEND syndrome but the Kir6.2 mutation was not detected, she has PNDM and is currently on glargine and aspart insulin.Conclusion: Each of these patients with NDM had different genetic abnormalities. Genotyping was useful to identify the patient that could be treated with sulphonylureas. A nationwide study utilizing genome sequencing is recommended.

ABSTRACT NUMBER / ABSTRAKNOMMER: 32

INCIDENCE AND OUTCOMES OF PRIMARY MALIGNANT THORACIC NEOPLASMS

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Lung and endobronchial neoplasms are unusual in the paediatric population with a diverse pathological spectrum, varying prognosis and survival rates. Early recognition, diagnosis and treatment is key to a good outcome.This retrospective study includes all children younger than 16 with primary thoracic tumours diagnosed and treated at Tygerberg Children's Hospital. It aimed at describing the incidence of these tumours, determine patient demographics, different histological diagnoses, treatment modalities and outcome of participants. 59 patients were included and divided into 3 groups. Group 1 primary thoracic neoplasms, group 2 leukemias and group 3 lymphomas. In group 1 the median age was 3.3 years, 55% female, ethnic distribution black 23%, white 36% and coloured 41% . Overall survival rate was 64%, most common presenting symptom was cough (55%), followed by tachypnoea, mass, chest pain and fever. In 95% of cases the chest x-ray was suggestive, assisted by biopsy in 68%, surgery in 32% and bronchoscopy in 5%. The histological diagnosis

included 6 neuroblastomas, 3 Rhabdomyosarcomas, 2 Pleuropulmonary blastomas, 2 Kaposi sarcomas, 2 Ewing's Sarcomas and 1 each of infantile fibrosarcoma, myoepithelioma, undifferentiated sarcoma and osteogenic sarcoma. Tumour sites were mediastinal 36%, pulmonary 32%, thoracic wall 14%, rib 9%, paratracheal 5% and thoracic spine 5%. Stage at diagnosis included 18% stage 1, 36% stage 2, 18% stage 3, 9% stage 4 and 18% unknown. Management included chemotherapy in 82%, radiotherapy in 23% and surgery in 64% of patients. This study confirms the rarity of primary paediatric thoracic neoplasms . The most common diagnosis was neuroblastoma, followed by rhabdomyosarcoma and ganglioneuroblastoma. The outcome is good if diagnosis is made early and surgical resection is possible. We found a 75% survival rate for patients diagnosed in stage 1 or 2 of disease compared to a 50% survival rate if diagnosed in stage 3 or 4..

ABSTRACT NUMBER / ABSTRAKNOMMER: 33

PREDICTING THE RISK OF ADVERSE EVENTS IN CHILDREN WITH FEBRILE NEUTROPENIA: A VALIDATION OF PREVIOUSLY IDENTIFIED CLINICAL DECISION RULES

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PurposeTo validate an existing clinical risk assessment tool (Ammann tool) to predict adverse events (AEs) in children with cancer and febrile neutropenia (FN).1 Patients and methodsPatients less than 16 years of age treated for malignancies, with fever (axillary temperature > 38 °C twice in 24 hours or > 38.5 °C once) and neutropenia (neutrophil count < 500 cells/mm3) were enrolled. A risk prediction score1 was calculated for each patient according to the Ammann rule, and AEs were documented until antibiotics had been stopped and neutropenia resolved. The risk prediction score included haemoglobin ≥ 9 g/dL, white cell count < 0.3 g/L, platelet count < 50 g/L and chemotherapy more intensive than acute lymphoblastic leukaemia maintenance therapy. AEs were defined as severe medical complications, microbiologically defined infection and radiologically confirmed pneumonia.ResultsThere were 100 FN episodes in 52 patients (54% haematological malignancies; 46% solid tumours). The male:female ratio was 1.8:1 with a median age of 56 months (mean age of 71 months). AEs occurred in 45% patients with a low risk score < 9 and 55% with a high risk score ≥ 9, yielding a sensitivity of 55%, specificity of 65%, positive predictive value of 51% and negative predictive value of 68%. Total WCC ($p < 0.01$) and absolute monocyte count ($p = 0.05$) were significantly associated with an AE. ConclusionAlthough this study did not succeed in validating the risk assessment tool, it demonstrated the important association between total WCC, absolute monocyte count and an AE during FN. 1.Ammann RA, et al. Predicting adverse events in children with fever and chemo-therapy-induced neutropenia: The prospective multicenter SPOG 2003 FN study. J Clin Oncol 2010;28:2008–2014.

ABSTRACT NUMBER / ABSTRAKNOMMER: 34

A RETROSPECTIVE REVIEW OF THE OUTCOMES OF GASTROSCHISIS AT A TERTIARY HOSPITAL IN CAPE TOWN.

ANDREW VAN ECK, ETIENNE D NEL, SANDI L HOLGATE, LIZELLE VAN WYK (PAEDIATRICS AND CHILD HEALTH)

Background. The incidence of Gastroschisis (GS) is rising and the outcomes in low to middle income countries are believed to be poor. Many studies from developed countries have evaluated prognostic factors and outcomes of GS, however there is little data from the developing world. Aim. To determine the outcome of neonates treated for GS in a tertiary neonatal service in South Africa. Methods. A retrospective case series of neonates admitted from January 2004 to July 2015 to the

neonatal intensive care unit (NICU) at Tygerberg Children's Hospital, Western Cape was conducted. Of the 39 cases, full clinical data was available for 31. All had surgery (primary closure or silo placement with delayed closure) and initial total parenteral nutrition (TPN). Main outcomes assessed were mortality rate, sepsis rate, time to full enteral feeding, occurrence of bowel related complications and the development of parenteral nutrition associated cholestasis (PNAC). Results. Of the 31 neonates with GS, five (16%) cases were complex GS. Two (6.4%) neonates died. The culture proven sepsis rate was 46% and overwhelming infection was the most common cause of death. Seventy-one percent had no bowel related complications and the majority (67%) achieved full enteral feeding by 21 days. Six (24%) developed PNAC. Conclusion. The outcome of GS in a single center tertiary hospital is comparable to that in high-income countries. The mortality and bowel complication rate is low, however there is a high rate of sepsis. To reduce mortality, strict infection prevention control is mandatory.

ABSTRACT NUMBER / ABSTRAKNOMMER: 35

TRAJECTORY OF FASD ACROSS THE LIFESPAN: NEW UNDERSTANDINGS IN INTERVENTIONS

NERINA BESTER (UNIVERSITY OF STELLENBOSCH - PSYCHIATRY)

The Significance Of Abstinence In Breastfeeding MothersAbstractObjectives: To explore the efficacy of Case Management (CM) as an empowering tool for mothers to abstain from alcohol in pregnancy and to prepare them to abstain from alcohol when breastfeeding.Materials and Methods: Female study participants at risk for bearing children with FASD were recruited from antenatal clinics and engaged in 18 months of CM in a rural South African community with a subculture of heavy, regular weekend recreational binge drinking. After informed consent was signed, maternal risk factors and the efficacy of case management were explored. A range of possible maternal risk factors were explored from the samples that were recruited. The main effects of whether the study participant used alcohol while breastfeeding were evaluated. Results: Mothers who consumed alcohol during pregnancy was more likely to consume alcohol post-partum which include while breastfeeding. Mothers who drank alcohol when breastfeeding were 6 times more likely to have a child with FASD.Conclusions: Maternal alcohol abuse while breastfeeding was found to seriously compromise a child's development. Making enduring changes in a social setting where drinking is culturally acceptable is very difficult. CM provided by empathetic, skilled case managers reduced maternal drinking at critical times such as pregnancy and breastfeeding.

ABSTRACT NUMBER / ABSTRAKNOMMER: 36

A COMPARISON OF DRINKING DATA REPORTED BY WOMEN ADMITTED TO CASE MANAGEMENT WITH DRINKING DATA REPORTED LATER IN A LONGITUDINAL STUDY

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Objectives: The Western Cape Province of South Africa (SA) has a subculture of binge drinking which creates a prevalence of FASD in some communities that are the highest documented in the world (18.3 to 25.9 per 1,000 children). SA women are forthcoming in providing drinking history, and the information obtained has always been perceived as honest and reliable by researchers of fetal alcohol spectrum disorders (FASD). In this poster we will utilize comparative statistical analysis to determine

the reliability of alcohol use reporting in this population of women from the prenatal period to five years post-partum. Method: Data on maternal drinking originate from two sources. 1) Alcohol use reports by quantity, frequency and gestational timing (QFT) from 40 high risk, alcohol-using mothers who were provided case management (CM) during pregnancy. 2) Similar QFT data were also gathered from these same 40 mothers in a longitudinal, cohort study of FASD in which their children were followed and their development assessed from birth to 60 months. Alcohol use was again reported at baseline, 6, 12, 18, and 42 or 60 months. In this poster the drinking history reported during CM will be compared to that given in the longitudinal study maternal interviews to determine if there were specific drinking trajectories in this six year period and to determine reliability over time. Results: In the longitudinal follow-up interview, some mothers admitted to drinking more than that which they reported in CM, and some mothers who claimed that they did not drink when interviewed during CM later admitted that they drank while in CM and provided specific details of QFT. Conclusion: A detailed comparison of drinking trajectories from entrance in CM in the antenatal period to five years post-partum will be presented, analysed regarding reliability over time, and reliability by specific demographic characteristics.

ABSTRACT NUMBER / ABSTRAKNOMMER: 37

THE SIGNIFICANCE OF ABSTINENCE IN BREASTFEEDING MOTHERS CATEGORY: MATERNAL AND CHILD HEALTH

NERINA BESTER (UNIVERSITY OF STELLENBOSCH - PSYCHIATRY)

The Significance Of Abstinence In Breastfeeding MothersAbstractObjectives: To explore the efficacy of Case Management (CM) as an empowering tool for mothers to abstain from alcohol in pregnancy and to prepare them to abstain from alcohol when breastfeeding.Materials and Methods: Female study participants at risk for bearing children with FASD were recruited from antenatal clinics and engaged in 18 months of CM in a rural South African community with a subculture of heavy, regular weekend recreational binge drinking. After informed consent was signed, maternal risk factors and the efficacy of case management were explored. A range of possible maternal risk factors were explored from the samples that were recruited. The main effects of whether the study participant used alcohol while breastfeeding were evaluated. Results: Mothers who consumed alcohol during pregnancy was more likely to consume alcohol post-partum which include while breastfeeding. Mothers who drank alcohol when breastfeeding were 6 times more likely to have a child with FASD.Conclusions: Maternal alcohol abuse while breastfeeding was found to seriously compromise a child's development. Making enduring changes in a social setting where drinking is culturally acceptable is very difficult. CM provided by empathetic, skilled case managers reduced maternal drinking at critical times such as pregnancy and breastfeeding.

ABSTRACT NUMBER / ABSTRAKNOMMER: 38

LONGITUDINAL STUDYING OF THE PHYSICAL FEATURES OF FETAL ALCOHOL SPECTRUM DISORDERS FROM NEWBORN TO 7 YEARS OF AGE IN THE TOWNS OF ROBERTSON AND ASHTON

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Objectives:To determine if known physical features of Fetal Alcohol Spectrum Disorders (FASD) are identifiable from an early age, to enable early diagnosis. Methods:FASD are diagnosed by trained physicians, who during examination of a study participant, look for specific physical features of the disorder. Each physical feature carries a different diagnostic weight. The summary of these diagnostic features make up a total dysmorphology score. Longitudinal studying of dysmorphological features is key to determine if a diagnostic pattern is identifiable for final diagnosis. An identified cohort has been physically examined at regular intervals (6 weeks, 9 months, 18 months, 42 months and 84 months). Children, meeting criteria for inclusion in the study as well as randomly selected controls, were selected from a cohort identified by recruiting pregnant mothers prenatally. All participants received cognitive/behavioural testing at the described intervals.Conclusion:Nineteen children were re-examined by trained dysmorphologists at the most ideal age for diagnoses, i.e. 6-7 years of age. Longitudinal diagnostic information showed a positive correlation within the diagnostic features and diagnosis over the longitudinal time periods.These results may in future assist with earlier diagnoses and will enable early intervention to better improve cognitive outcomes of children affected by prenatal alcohol exposure.

ABSTRACT NUMBER / ABSTRAKNOMMER: 39

EXAMINING THE ROLE AND APPLICATION OF HYALURONIC ACID PRODUCT [PICSI DISH SPERM SELECTION] IN THE TREATMENT OF INFERTILITY

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Introduction: Several hyaluronic acid (HA) based products aiming to improve the outcomes of assisted reproduction treatment (ART) are currently available on the market. HA is naturally present in the female reproductive tract and produced by human cumulus cells. One of its uses is for sperm selection in the intracytoplamic sperm injection (ICSI) fertilization procedure. HA drops, applied to PICSI dishes, facilitate binding of more mature and DNA normal sperm cells. Bound sperm cells are selected for injection in PICSI treatment and are thought to give improved outcomes.Aim: This retrospective study aimed to evaluate and compare the outcomes of PICSI and ICSI patients with an IVF group as control.Materials and Methods: 388 patients (PICSI [n=164], ICSI [n= 183] or IVF [n=41]), meeting specific exclusion criteria designed to eliminate variables other than the fertilization method that could have influenced treatment outcomes, were included in the retrospective study. Outcomes measured included; fertilization rate, blastulation rate, embryo quality and pregnancy rates.Results: The comparison showed no statistically significant improvement in ART outcome, in Drs. Aevitas Fertility Clinic, when the HA product in PICSI dishes were used to select spermatozoa for injection. Fertilization rate: PICSI (77.4%) and ICSI (80.4%), (p=0.226), Quality of embryos: PICSI and ICSI on culture day 2 (p=0.318), day 3 (p=0.597) or day 5 (p=0.120). Pregnancy rate [ongoing and term]: PICSI (33.11 %) and ICSI (42.22%), [rr=0.82 (95%CI 0.62 to 1.08), p=.161].Conclusion: Although the PICSI group had an 8.2% lower pregnancy rate compared to the ICSI group, it was not statistically significant. The results of this study have produced valuable information that will inform future use of hyaluronic acid products in the treatment of patients attending Drs Aevitas Fertility Clinic.

ABSTRACT NUMBER / ABSTRAKNOMMER: 40

AN INVESTIGATION OF THE EFFECT OF DIFFERENT CO_2 INCUBATORS/INCUBATION METHODS ON ASSISTED REPRODUCTIVE TECHNOLOGY [ART] OUTCOMES.

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Introduction:—CO_2 incubators contribute significantly to the high cost in ART clinics but play a crucial role in optimizing embryo development and clinical outcomes. Multiple CO_2 incubator types exist with varying capabilities and costs and can possibly affect ART outcome.
Objective and Design: The effect of two different CO_2 incubators: Forma Scientific CO (Water Jacketed) [INC1] and COOK MINC™ Benchtop Incubator [INC2] used at the Aevitas Fertility Clinic on ART outcome (2013-2014).
Hypothesis: INC2 will result in improved ART outcome compared to INC1.
Material and methods: A retrospective data analysis, implementing exclusion criteria to eliminate factors [other than incubator type] that could potentially influence the results, was done. A total of 385 [INC1 = 327, INC2 = 58] patient cycles were included. Standard ART protocols were followed and outcomes measured were: age of ova, total ova/ cycle, normal sperm morphology, fertilization rate, percentage good quality embryos [GQE] and clinical pregnancy/transfer.
Results: INC1 cycles (n = 327) vs. INC2 (n = 58): age of ova 30.25 (±4.88) vs. 30.70 (±4.64) [NS], total ova per cycle 13.28 (±7.58) vs 12.59 (±7.77) [NS], average normal sperm morphology 8.41% (±4.60%) vs 9.146% (±4.74%) [NS], fertilization rate of MII oocytes 79.40% vs. 79.06% [NS]. Percentage of GQE per number of ova aspirated on days 2, 3 and 5: INC1 vs INC2 cycles; 55.89% vs 57.44% [NS], 39.31% vs 44.58% [p = 0.03] and 23.60% vs 21.76% [NS] on Day 2, 3 and 5, respectively. The clinical pregnancy/transfer: 45.43% [144/317] vs. 47.17% [25/53] for INC1 and INC2 cycles respectively [p = 0.81]. Conclusion(s): Patient demographics in INC1 and INC2 were similar. No significant difference was observed in clinical pregnancy, between INC1 and INC2 cycles. There was however a significant higher, relative probability [15%] for GQE on day 3 in INC2 compared to INC1.

ABSTRACT NUMBER / ABSTRAKNOMMER: 41

IODISED SALT AND IODINE SUPPLEMENTS FOR PRENATAL AND POSTNATAL GROWTH: A RAPID SCOPING OF EXISTING SYSTEMATIC REVIEWS

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Introduction: Iodine deficiency can adversely affect child development including growth. However, the effect of iodine supplementation/fortification on prenatal and postnatal childhood growth is unclear, and a rigorous systematic review could contribute to this evidence base. To avoid duplication and inform a possible new review, we undertook a rapid scoping of existing systematic reviews. Methods: We searched TRIP and Epistemokinos databases (15 December 2014). All English systematic reviews (of experimental or observational studies) reporting iodine supplementation/fortification (any form, dose, regimen) for iodine-related health outcomes (including but not limited to growth), in pregnant or lactating women or children to age 18, were included. Duplicate extracted data allowed examination of the scope of questions, including: author, publication year, most recent search date, participants, pre-specified treatment/exposure and comparator, pre-specified outcomes and those relevant to our question, number and type of studies included. Methodological quality was assessed using the validated AMSTAR tool. Results: 976 records were screened and 10 reviews, mostly of moderate methodological quality, included. Outcomes included

thyroid function, iodine deficiency disorders, mental development and growth in pregnant women, preterm infants and children into adulthood. Although five reviews pre-specified growth outcomes, none provided synthesised evidence on effects of iodine supplementation or fortification on prenatal and postnatal somatic growth. Conclusions: Our rapid scoping demonstrated a gap in the evidence with no up to-date systematic reviews on the effects of all forms of iodine supplementation/fortification in relevant populations on growth and growth-related outcomes. A new systematic review examining this question will assist in addressing this gap.

ABSTRACT NUMBER / ABSTRAKNOMMER: 42

A RETROSPECTIVE REVIEW OF PAEDIATRIC CEREBRAL VENOUS SINUS THROMBOSIS IN A SOUTH AFRICAN TERTIARY HOSPITAL

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Introduction: Paediatric cerebral venous sinus thrombosis (CVST) is a rare disorder with an estimated incidence of 0.67 per 100,000 children in developed countries. There are no previous studies on CVST in Sub-Saharan Africa. Published data suggest that the aetiology of CVST is multifactorial. The study aim was to describe the patients diagnosed with CVST who presented to Tygerberg Children's Hospital. Methods: This is a retrospective, descriptive study. All children under 14 years were identified who presented to Tygerberg Children's Hospital with a diagnosis of CVST based on neuroimaging. Clinical information and relevant special investigations were reviewed. Results: 35 patients were identified as having CVST. There was male predominance of 57% (20/35), a mean age of presentation of 16.9 months and a mean weight-for-age Z-score of -2.0. Twenty-four patients (68,6%) had acute gastro-enteritis as an acute associated illness. Seventeen patients (48,7%) had hypernatraemia (sodium above 145mmol/L) on presentation. Other acute associated illnesses included meningitis (9/35), pneumonia (6/35) and septicaemia (6/35). Presenting symptoms were non-specific, however 25 patients presented with convulsions; 18 generalized tonic-clonic convulsions and 7 focal convulsions. The most common cerebral sinuses involved were the left transverse sinus (19/35), superior sagittal (14/35) and right transverse sinus (13/35). Forty percent (14/35) of patients had single sinus involvement. The most common associated feature on neuroimaging was cerebral oedema (20/35). Two patients demised and 13 had neurological deficits at discharge. Conclusion: Cerebral venous sinus thrombosis in these patients were all related to an acute systemic illness due to communicable diseases. This could be due poor social circumstances seen in a resource poor country like South Africa. This is also highlighted by the high number of patients that are severely underweight-for age. The majority of the patients (60%) had multiple cerebral sinuses involvement which accentuates the potential severity of the disease.

ABSTRACT NUMBER / ABSTRAKNOMMER: 43

GENETIC COUNSELLING FOR NON-INVASIVE PRENATAL TESTING: TWO-YEAR EXPERIENCE

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Introduction: Non-invasive Prenatal Testing (NIPT) using cell-free fetal DNA is currently the most accurate prenatal screening method for Down syndrome. NIPT was offered in South Africa for the first time by the Fetal Assessment Center, in collaboration with the Genetics team at Tygerberg Hospital/Stellenbosch University, in July 2013. We describe the first 2 years of our experience with implementing NIPT in a clinical, private practice setting, specifically focusing on the genetic

counselling considerations. Methods: A retrospective record review was performed for data pertaining to women who received genetic counselling for NIPT during the period of July 2013- June 2015 for common autosomal and/or sex chromosome aneuploidies and/or fetal gender. Data was collected on rate of uptake of NIPT, indications and motivations for testing, characteristics of patients and test results. Results: During this period, 385 women received genetic counselling about NIPT and 354 (91%) accepted the test. Of women tested, 79% were at high risk for Down syndrome, because of advanced maternal age (60%) or positive screening tests (21%). The mean maternal age was 38 years and the majority of tests were performed between 12-13 weeks gestation. Eight (2.3%) NIPT screen positive results were obtained: seven for Trisomy 21 and one for Trisomy 18, and seven ended in termination of pregnancy. Conclusion: NIPT is a relatively expensive screening test, only available in the private sector to a select group who can afford it. Whilst most women requested NIPT for a high risk of Down syndrome, other reasons included additional reassurance or general concerns about Down syndrome/disability. Pre-test counselling is important- NIPT is declined in 9% of cases, often because the indications for NIPT are misunderstood.