SA Renal Congress Poster Abstracts

004

Hypertension in Pregnancy: A Future Risk for Chronic Kidney Disease (CKD) In South Africa

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Introduction / Background

Hypertension in pregnancy is a risk factor for early onset of CKD, and pre-eclampsia for end stage CKD. Hypertension in pregnancy is particularly common in South Africa, and there are no data for the risk of CKD. With this in mind we decided to conduct an audit of all female presenting for the renal replacement programme at Groote Schuur Hospital.

Methods

This was a retrospective study performed on female patients with end stage CKD who were presented to the renal replacement meeting between 2007 and 2017. Each assessment had a comprehensive letter recorded detailing patient demographics, psychosocial and medical history, and these served as the source data. Patients with a history of hypertension in pregnancy were identified as the case group and those without were the control group. Patient demographics, causes of CKD, kidney function and outcome of the meeting were documented. Results were analysed using basic statistical tests.

Results

Of the 415 female patients with end stage CKD 70 (16.9%) had a history of hypertension in pregnancy. Compared to the control group the cases were younger with a median age of 33 vs. 41 years ($p<0.001$), higher serum creatinine 1045 vs. vs. 751 μmol/L ($p=0.017$), and lower eGFR 4 vs. 5 ml/min ($p=0.029$). Cases were more likely to abuse methamphetamine (5.7% vs. 1.7%, $p =0.049$), and less likely to be diabetic (1.4% vs. 20.9%, $p<0.001$) and HIV positive (2.9% vs. 12.5%, $p=0.019$). Underlying causes of renal disease showed significant differences as cases were more likely to have hypertensive nephropathy (57.1% vs. 22.9%), and less likely to have diabetic kidney disease (1.4% vs. 20.4%, HIVAN (1.4% vs. 6.4%) and polycystic kidney disease (1.4% vs. 7%) ($p<0.001$). There was no difference in acceptance to the dialysis and transplant programme (50% vs. 46%).

Conclusions

This study suggests an important link between hypertension in pregnancy and CKD. These patients are significantly younger, present later, and more likely to have hypertensive nephropathy. Methamphetamine abuse appears to be a risk factor. Further study is warranted but this study suggests that all women with hypertensive disorders in pregnancy need further evaluation and follow up postpartum.

008

Histological Patterns Associated with Mortality and Renal Morbidity in Renal TB-IRIS

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Introduction / Background
Tuberculosis immune reconstitution inflammatory syndrome [TB-IRIS] is a well described clinical entity affecting multiple organs in HIV infected patients. However, a paucity of information exists regarding renal involvement. This study aimed to illustrate the clinical, biochemical and histopathological features of HIV patients with suspected renal TB-IRIS, and to assess the mortality and renal outcomes of these patients.

Methods
Renal biopsies were retrospectively reviewed for the presence of granulomatous interstitial nephritis [GIN] from 2 HIV+ve renal biopsy registries. Patients' folders and laboratory records were reviewed for evidence of tuberculosis [TB], the possiblity of renal TB-IRIS and for other causes of GIN (drugs, other infections and sarcoidosis).The data were analysed comparing 3 groups: [TB:no IRIS], [TB+IRIS] and [other] (other causes of GIN).

Results
68 biopsies were identified with GIN. The mean age was 37.5± 9.1 years. There were 33 males (48.5%); 61 (89.7%) were of black african ancestry, 29 (43%) were on a medications known to cause GIN. The shortest time between ART intitiation to biopsy was in those with [TB+IRIS]. The mean CD4 at biopsy was 105, with the lowest value in the [TB+IRIS] group (P-value 0.0175). Granulomas were better formed in the [TB:IRIS] group (P value 0.075). Sixteen (25%) subjects had died within 2 years of their biopsy, 12 (44%) in th [TB:no IRIS] group(P-value 0.01).

Conclusions
There is a clinical entity of TB-renal IRIS that is associated with GIN on renal biopsy. There were significant findings in the [TB+IRIS] group that included a shorter time from ART initiation to biopsy, a lower CD4 count at biopsy and nadir and a very low occurrence of poorly-formed granulomas. The majority of deaths within 2 years were noted in the [TB:no IRIS] group. This entity seems to be in keeping with other TB-IRIS descriptions previously published.

016
Amphotericin B Nephrotoxicity in Patients with Cryptococcal Meningitis

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Introduction
Opportunistic cryptococcal infections are responsible for 20% of HIV-related deaths in sub-Saharan Africa. Amphotericin B deoxycholate is a cornerstone of treatment for cryptococcal meningitis but is associated with risk of nephrotoxicity. South African data on Amphotericin B associated nephrotoxicity is sparse.

Methods
A retrospective observational review of patients diagnosed with cryptococcal meningitis at Klerksdorp / Tshepong Hospital Complex from July 2013 to June 2014 (n = 53) was undertaken in order to describe the incidence and outcome of Amphotericin B (AmpB) nephrotoxicity.

Results
83% of HIV positive patients receiving AmpB for cryptococcal meningitis developed acute kidney injury (AKI); 5.66% progressed to chronic kidney disease (CKD). The development of AKI was dependent on the dose of AmpB received and was more frequent in patients receiving Tenofovir. No patient required dialysis during the course of the study. Mortality in this cohort was 18.87%; mortality was higher in those with AKI group, although this was not statistically significant.

Conclusion
Nephrotoxicity is common in patients receiving AmpB and is dose-dependent. The risk of AKI is significantly increased by co-administration of Tenofovir, necessitating ART regimen review before initiating therapy. The development of AmpB nephrotoxicity carries a low risk of CKD but is associated with a non-significant increased frequency of mortality. Of note, mortality of cryptococcal meningitis in this cohort of HIV-infected patients was lower than that reported in other studies (18.87% vs. 30 – 40%).

0024
Early Life Factors and Longitudinal Blood Pressure Trajectories are Associated with Elevated Blood Pressure in Early Adulthood: Birth to Twenty Plus Cohort

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Introduction / Background
Multiple perinatal and early life risk factors have been implicated in the development of hypertension in later life. The Birth to Twenty Plus (BT20) cohort in urban Soweto (South Africa) recently showed a prevalence of elevated blood pressure (EBP) that ranged from 22,4% at age 5 years to 34,9% at age 18 years. We therefore sought to determine the prevalence of EBP at age 23 within this cohort and assess whether this could be linked to any perinatal, maternal and early life factors and previously defined childhood and adolescent blood pressure (BP) trajectories.

Methods
Blood pressure (BP) and anthropometric measurements were completed on the BT20 cohort participants at age 23 (n=1540, 49% males). Early life and maternal factors were obtained from previous data collected on the cohort. Blood pressure trajectory groups in childhood and adolescence were previously defined using group latent class modelling.

Results
Thirty six percent of young adults had EBP of whom 63% were male ($p < 0,001$) and greater linear growth from birth to 2 years of age conferred a 19% increased risk (1.19, [1.01–1.41] per SD). Females had a 77% lower risk of EBP (odds ratio 0.23 [95% confidence interval 0.16–0.34] per SD). Childhood and adolescent BP trajectories contributed significantly in terms of risk. Participants in the highest SBP trajectory (a trajectory where BP was elevated early and remained elevated) had a four-fold higher risk of elevated blood pressure at 23 years of age. Similarly, participants in the highest diastolic BP (DBP) trajectory had a five-fold higher risk of elevated blood pressure at 23 years of age.

Conclusions
These findings suggest that risk for EBP in adulthood may be set in childhood and adolescence. The data also suggest that BP trajectories in childhood and adolescence may identify those who are at risk for EBP in early adulthood. What remains to be determined is whether this group with EBP will progress to develop hypertension as young adults and, if so, whether they would benefit from therapeutic interventions to lower blood pressure at a young age.

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025
Acute Kidney Injury in Critically Ill Patients in an Eastern Cape Tertiary Intensive Care Unit

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Introduction / Background
Acute Kidney Injury (AKI) is associated with substantial morbidity and mortality in ICU. There are wide variations in the reported incidence of AKI in high-income country ICU's. In Sub-Saharan Africa, where there is a substantial burden of HIV, there is a paucity of data concerning AKI and its incidence, aetiology and effect on mortality plus functional renal recovery.

Methods
Prospective data was collected on all patients admitted to the multi-disciplinary Livingstone Tertiary Hospital ICU during 2017. Demographics, co-morbidities, details relating to the ICU admission and the development of AKI were recorded. Those with AKI were assessed for renal recovery 90-days after ICU discharge.

Results
Of 852 admissions, the mean age was 42 (SD16.7), 56% required ventilation, 23% required vasopressors, median length of stay was 3 days (IQR 1-6) and mean admission SAPS3 score was 48.1 (SD15.93). Comorbidities included hypertension (30.5%), HIV (18.4%), diabetes (13.3%), CKD (7.8%) and active tuberculosis (6.2%). AKI developed in 498 (58%); 42% of these were KDIGO stage III and 88 (18%) required dialysis. Positive predictors of AKI included age, diabetes, HIV, antiretroviral use, emergency surgery, higher illness severity score , longer stay, ventilation, ARDS, septic shock and the use of vasopressors ($p<0.05$ for all). The commonest ascribed causes of AKI were hypovolaemia (55%), sepsis (40%), rhabdomyolysis (25%) and drug/toxin (4%). Overall hospital mortality rate was 21.2% but was higher in the AKI cohort (32% vs 5.4%; OR 9.17; 95%CI 5.6-14.9). Full renal recovery occurred in 95.7% of AKI survivors while 14 (12.7%) of those with stage III AKI had chronic kidney disease at 90 days after discharge.

Conclusions
Despite a young population, AKI is frequently encountered in our ICU and is associated with high mortality, but good functional renal recovery in survivors. Patients with AKI were generally more ill and had common co-morbidities including diabetes and HIV.

026
Histopathological Pattern of Renal Diseases Among HIV Infected Treatment-Naïve Patients in Kano Nigeria

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Introduction / Background
A wide spectrum of renal diseases is seen in patients with HIV infection. Some are directly related to the HIV infection while others are multifactorial. There are variations in the occurrence of these renal diseases based on the ethnicity and geographic setting of the patients. Histological diagnosis is only certain by doing renal biopsy in suitable patients. This allows for institution of appropriate treatment. There are limited data on the histological pattern of HIV renal diseases in most sub-Saharan African countries. Many of the reported studies were limited by the small number patients who had renal biopsies.

Methods
This is a cross sectional observational study in which 984individuals with HIV infection were screened and 40 HIV infected and treatment-naïve patients with either persistent significant proteinuria and/or an eGFR of less than 60mls/min, with no contraindications to a renal biopsy, were consecutively recruited. The tissues obtained were sent for histopathology and were reviewed independently by two renal pathologists.

Results
The mean age of the study population was 34±12.5 years, with 40% females. Mean serum creatinine was 252.5±201μmol/L, mean CD4 count was136±103cells/ml. Almost all the patients had persistent significant proteinuria. The majority (42.5 %) had HIVAN as the histological diagnosis, followed by chronic interstitial nephritis in 22.5% and 20% had no significant pathological finding. Patients with HIVAN had a lower age, lower CD4 count and higher serum creatinine.

Conclusions
Renal involvement is common among HIV infected treatment naïve patients and HIVAN is the commonest histological type. Persistent proteinuria is the commonest presentation. We recommend assessment of renal function and urinalysis as part of the routine evaluation of newly diagnosed HIV patients.

027

The Prevalence of Depression in CKD 5 patients on Renal Replacement Therapy, Associated Risk Factors and Common Presenting Features

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Background
A high prevalence of depression exists in patients with end stage renal failure (ESRF). Studies have shown that 15%-60% of patients with ESRF are diagnosed with depression, a rate 3-4 times higher than that estimated for the general population and 2-3 times higher than in other chronic illnesses. The presence of depression in ESRF patients is associated with decreased quality of life, non-compliance to medical treatment, worsening of nutritional status, higher risk of withdrawal from dialysis, increased hospitalisation and increased mortality. Common risk factors for depression include younger age, female gender, white race, longer duration of dialysis and co-morbid illnesses such as cardiovascular disease. Despite occurring commonly in patients with ESRF, depression is under-recognized and under-treated due to the similarity between depression symptoms and uremic symptoms, and a lack of awareness among clinicians. Identifying depression is key to improving treatment outcomes and patient survival.

Methods
This study looked at patients on chronic haemodialysis or peritoneal dialysis at three major centres in Johannesburg. The Beck Depression Inventory (BDI) is used as a screening tool to assess for clinically significant

depression. Laboratory data, information regarding dialysis vintage, drugs, and comorbid illnesses is obtained from the patient files. A BDI score of 15 was used to detect clinical depression and patients in whom the diagnosis is made will be referred for further clinical evaluation.

Results
All patients on haemodialysis or peritoneal dialysis who qualified were approached. A significant proportion (12%) declined to participate citing reasons such as not willing to undergo formal psychiatric review due time constraints outside their dialysis time. Depression symptoms were identified in about 40% patients interviewed. The common symptoms identified were depressed affect, loss of energy, and feelings of apathy. Scores positive for depression were above 30 indicating moderate to severe depression.

Conclusion
The results of this study indicate that clinical depression is a common comorbidity in CKD 5 patients on dialysis and results will help to inform practices surrounding the diagnosis and management of depression in ESRF patients on dialysis in our population.

028
Traditional and Non-Traditional Cardiovascular Risk Factors in the Chronic Dialysis Population at Chris Hani Baragwanath Academic Hospital and Sebokeng Provincial Hospital

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Background
The link between chronic kidney disease (CKD) and cardiovascular disease (CVD) is well established. Even from the earliest stages of CKD, patients are at significantly elevated risk from CVD related events such as cerebrovascular accident and myocardial infarction. There is significant data that point to the contribution of non-traditional risk factors towards CVD in those patients with CKD. These non-traditional risk factors are often poorly recognised and managed within the CKD population, resulting in premature morbidity and mortality.

Methods
All patients 18 years or older; on the chronic dialysis programme at Chris Hani Baragwanath Academic Hospital(CHBAH) and Sebokeng Provincial Hospital(SPH) were included in this audit. Recent records were used to collect data including: demographics, medical history, chronic medication, clinical and laboratory data such as blood pressure, body mass index, random blood glucose, lipogram, uric acid, haemoglobin and iron studies.

Results
Complete clinical and laboratory data was available for 176 patients (77 Peritoneal dialysis and 99 haemodialysis). Preliminary analysis showed that while HIVAN was the cause of CKD for 9% of patients, hypertension accounted for 60%. Analysis showed that 55% of patients had uncontrolled blood pressure and 44% had a BMI over 25, both modifiable risk factors for CV events. Analysis of non-traditional risk factors shows that 86% of women and 89% of men were anaemic, while 37% of patients had an elevated parathyroid hormone level.

Conclusions
The prevalence of traditional and non-traditional risk factors is elevated in the chronic dialysis population of CHBAH and SPH. Traditional risk factors need to be optimally managed by developing standardised treatment targets for the dialysis population. Further prospective studies are needed to evaluate the CV impact of non-traditional risk factors and to demonstrate whether modifying non-traditional risk factors provides benefit with regards to CV endpoints.

029

A Retrospective Study of the Presentation and Outcomes in Primary Focal Segmental Glomerulosclerosis in A South African Population

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Background
Focal Segmental Glomerulosclerosis (FSGS) is a clinico-pathological disease entity estimated to have a global annual incidence of 0.2 to 1.8 per 100000 population per year. In South Africa, Primary FSGS occurred in 15.7% of patients biopsied for nephrotic syndrome. FSGS occurs more commonly in patients of African descent with significant variations in presentation with race and geographical location. The most common pathological subtypes in Africa are the classical and collapsing subtypes. Approximately 50-60% of patients will respond to primary treatment with steroids however, FSGS accounts for a significant proportion of patients who develop end-stage renal disease (ESRD).

Methods
Data was collected from 73 patients from three hospitals in Johannesburg over a 10-year period. The average follow-up period was 3 years. Statistical analysis was completed using Statistica™ software.

Results
Of the 73 patients, the majority, 58 (79.5%) were black. The median age of the patients was 30 years at diagnosis, and 57% were male. The most common subtype on biopsy was FSGS not otherwise specified which occurred in 56.7% of patients. All patients were started on corticosteroids as first line therapy, and 57.5% achieved complete remission after an average of 1.23 therapeutic courses. Second line therapy was initiated in 23.2% of patients for refractory disease and 31.5% of patients relapsed after attaining remission. Two patients demised from sepsis complicating therapy. At five-year follow-up 43.5% had developed chronic kidney disease (CKD), and 2 (2.7%) patients had ESRD.

Conclusion
In our setting, FSGS was commonly seen in young, black patients with a slight male preponderance. Initial response to corticosteroids was good but the relapse rate was marginally higher than in other studies. Almost half of the patients still being followed up at five years had developed CKD, a phenomenon requiring further study.

030

Incidence of Complications in Adults After Percutaneous Native Renal Biopsy in Low to Middle Income Countries: A Systematic Review

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Background
Kidney biopsy is essential in guiding clinicians to diagnose, treat and prognosticate renal disease. However, the procedure can be marred by various complications. The reported occurrence varies among countries or regions and is also affected by several clinical and technical factors. This systematic review aims to evaluate

the incidence of major complications after percutaneous renal biopsy in low to middle income countries (LMIC).

Methods
We included studies of populations from LMIC as per the published World Bank 2017 country list. Relevant abstracts published from 1 January 1980 to 30 December 2017 were searched in PubMed. Two review authors independently screened, selected studies, extracted data and assessed the risk of bias in each study. A third reviewer arbitrated in cases of disagreements. The data was entered on Excel spreadsheet and analysed according to geographical region and Income group

Results
22 studies with total biopsies of 12 153 biopsies met inclusion criteria. The ages ranged 3 to 84 years. Most of the studies (90%) were from middle income countries with only one study from sub-Saharan Africa. The reported renal biopsy complication rate was 9.4% in low income countries and 22.9% in middle income countries. The rate of macroscopic haematuria was min-max (4.4- 8%) in low income and 0.08-8.1% in middle income countries. The overall rate of minor complications ranged 4.4 -24% in low income countries and 0.3-8.9% in middle-income countries. There were no major complications reported in low income countries but occurred in 0.2-15.3% in middle-income countries. There was no death reported in all studies. Nephrectomy was only reported in one middle income country.

Conclusion
There are few studies reported from low income countries Majority of the studies were from Asia. Renal biopsy appears to be safe from reported studies with low rates of major complications reported. There is need for intervention to increase biopsy rates in low income countries and strategies to reduce complications.

032
An Analysis of Nephrology Human Resources for South Africa

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Background
The global nephrology workforce is shrinking and, in many countries, is unable to meet the healthcare needs of patients with renal disease. Accurate South African data pertaining to human resources in nephrology is lacking. This data is critical for the planning and delivery of renal services and the training of nephrologists in South Africa to meet the challenge of the growing burden of chronic kidney disease.

Methods
Registered nephrologists currently delivering nephrology services in South Africa were identified using various data sources, including the register of the Health Professions Council of South Africa. This cohort of doctors was described in terms of demographics, distribution, and nephrology activities. A survey was then conducted to describe the training, scope of practice, and the quality of life and other challenges faced by these nephrologists.

Results
A total of 120 adult nephrologists and 22 paediatric nephrologists were identified (2.4 per million population). There is a male predominance (66%) and the median age is 47 years. Of the nine provinces in South Africa, most nephrologists practice in Gauteng (42%), the Western Cape (28%) and KwaZulu-Natal (22%), with two provinces having no nephrologists at all. Preliminary results of the survey (51 responses) indicate that approximately half (47%) are White, only two did a nephrology fellowship abroad, 30 (59%) are working in the public sector and nearly all (94%) are working full time. Half of respondents spend 60% of their working week on clinical renal work and 5% of their time doing research. Many respondents are unhappy with their current workload (55%) and remuneration (37%) and 5 (10%) plan to emigrate before retirement, citing predominantly personal reasons.

Conclusions
There are insufficient numbers of nephrologists in South Africa, with an uneven distribution amongst the provinces and between public and private sectors. Provisional survey data indicate that South African nephrologists are faced with the challenges of a high workload and unsatisfactory remuneration. In the public sector, inadequate time for research is an additional challenge. A substantial proportion is contemplating emigration.

033
Renal Amyloidosis in South Africa in the HIV Era

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Background
Kidney disease is a serious manifestation of systemic amyloidosis and is a major source of morbidity and mortality. Tuberculosis (TB) occurs up to 34 times more commonly in human immunodeficiency virus (HIV) infected patients and is also an important cause of renal amyloid; there are however, no reports of renal amyloidosis in South Africa in the HIV era.

Methods
This was a retrospective record review of cases of amyloidosis diagnosed on renal biopsies at our tertiary referral hospital between January 1985 and December 2016.

Results
46 cases of amyloidosis were identified over the 32-year study period and calculated biopsy prevalence was 1.38 per 100 non-transplant renal biopsies (95% Confidence Interval 1.02 – 1.86). AL amyloidosis was identified in 26 (57%) of the cases and AA in 20 (43%). The median age at presentation was 51 years and 52% of cases were female. Patients with AA amyloidosis were significantly younger compared to their AL counterparts (median age 42 years vs. 58 years, p = <0.001) and were all significantly not of Caucasian ancestry. The main clinical presentation was with nephrotic syndrome (85%) and 52% of cases also had a serum creatinine value greater than 120 µmol/L. Of the 20 cases of AA amyloidosis, 12 (60%) were associated with tuberculosis. Non-TB causes included other chronic infections (four cases, 20%) and rheumatoid arthritis (two cases, 10%). Two cases of AA amyloid had no known association. HIV infection was noted in two (10%) of the 20 AA cases. Median survival after diagnosis was two months; however, patients with AA amyloidosis had a significantly worse outcome with median survival of one month as compared to nine months in AL amyloidosis (p = 0.02).

Conclusions
Amyloidosis is a rare cause of kidney disease in our setting and typically presents with nephrotic syndrome. A similar number of AA and AL types were observed, and outcomes are significantly worse in cases of AA amyloid. While TB remains the major underlying disease in this type, HIV infection was found infrequently in cases of renal amyloidosis and we suggest that HIV infection and amyloidosis may be mutually protective.

034
Multicystic Dysplastic Kidney Disease at Chris Hani Baragwanath Academic Hospital Over a Thirty Year Period

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Introduction / Background

Multicystic dysplastic kidney (MCDK) disease is a common non-inherited developmental anomaly, increasingly diagnosed antenatally. It is a single functional kidney associated with increased risk of anomaly of the opposite kidney.

Methods
A retrospective descriptive study of paediatric patients with MCDK disease was undertaken at a secondary-tertiary level hospital from January 1986 to December 2015.

Results
Over a 30 year period, 59 patients were identified; 36 (59%) were male and 31 (52.5%) were left sided. Overall, 20 (33.9%) of cases were diagnosed antenatally, with an increased frequency of cases diagnosed in the last decade (p=0.015). Eight (13.6%) had associated contralateral abnormalities; none had reflux into contralateral kidney.

Conclusions
The number of MCDK diagnosed was low but increasing, possibly due to increasing antenatal sonar. None of the patients had reflux into the contralateral kidney. Hyperfiltration, in children older than two years, had a median value of 157.0 ml/min/1.73m2 (n=25), without proteinuria.

035
Prevalence of Risk Factors for Chronic Kidney Disease in South African Youth with Perinatally- Acquired HIV

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Introduction / Background
Little is known about renal pathology among perinatally HIV-infected children and adolescents in Africa. We assessed the prevalence of risk factors for chronic kidney disease in South African children and adolescents with perinatally acquired HIV-1 (HIV+) on antiretroviral therapy (ART) and HIV negative children and adolescents.

Methods
HIV+ youth aged 9-14 years, on ART for >6 months and age matched HIV negative children and adolescents were eligible for assessment via urine dipstick and microalbuminuria. Blood pressure, glomerular filtration rate, HIV-related variables and metabolic co-morbidities were assessed at enrolment**.**

Results
Amongst 620 children and adolescents, 511 were HIV+. The median age was 12.0 years and 50% were female. In HIV+, 425 (83.2%) had a CD4 count >500 cells/mm3 and 391 (76.7%) had an undetectable viral load. The median duration of ART was 7.6 years (IQR: 4.6-9.3) with 7 adolescents receiving Tenofovir. The prevalence of any proteinuria or microalbuminuria was 6.6% and 8.5% respectively, with no difference between HIV+ and negative children and adolescents. All participants had a normal glomerular filtration rate.

Conclusions
Proteinuria and microalbuminuria appeared uncommon in this population. Follow up of those with microalbuminuria may inform long term outcomes and management of this growing population of HIV+ youth.

Funding
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037
An Audit of Haemodialysis in Children Weighing Less than 20 Kg in an African Pediatric Nephrology Unit

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Introduction / Background
Peritoneal dialysis and kidney transplantation remain the preferred choices for renal replacement therapy in young children. These options however aren't always feasible and haemodialysis (HD) is therefore an accepted alternative. In small children presenting with end stage renal disease (ESRD) haemodialysis presents several challenges and is often unavailable in lower and middle-income countries (LMIC).

Methods
To assess these challenges and outcome of maintenance haemodialysis in young children, we performed an audit of children below 20 kg with ESRD, receiving haemodialysis ≥ 4 weeks from 1st January 2008 to 31th July 2016 at the Red Cross War Memorial Children's Hospital.

Results
We identified 15 children weighing 6.8-18.5 kg (mean 12.9 kg± 3.5 SD) and aged 11.5-105 months (mean 52.2 months± 4.2SD) at HD initiation. Mean duration of HD was 11.8 months (range 1- 61.5 months±16.9 SD). Seven children underwent successful transplantation, two patients died and four currently still receive HD. Two patients while on HD relocated to other centers. An average 2.6 (range 1-5) different vascular accesses were required per patient. Mechanical difficulties were the most common cause of central-line removal (81%) while catheter-associated bacteraemia was 1.1/1000 catheter days. Frequent problems were intradialytic hypotension, growth stunting and interdialytic hypertension.

Conclusions
Haemodialysis in LMIC is feasible in small children but presents with certain challenges. Advocacy with lobbying for funding and development of 'child-friendly' dialysis equipment and specialized centers with highly skilled personnel are the cornerstones of successful paediatric HD programs in less resourced center's.

038
A Retrospective Descriptive Study on Primary Hyperoxaluria at Chris Hani Baragwanath Academic Hospital From 1984 To 2017

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Introduction / Background
Primary hyperoxaluria (PH) is a rare autosomal recessive condition characterized by defects in the metabolism of glyoxylate which leads to increased oxalate production and deposition. It is an important disease to consider due to the rapid progression to end stage renal disease (ESRD). The objective of this study is to increase awareness of clinicians on this disease and also describe the characteristics, diagnosis and management of PH in South African.

Methods
A retrospective study of all children, less than 16 years old, diagnosed with PH from the Paediatric Renal Clinic at the tertiary centre Chris Hani Baragwanath Academic Hospital from 1984 to 2017.

Results
A total of 19 patients was identified. The median age of presentation was 6 years. The most common and devastating clinical presentation was ESRD (89.5%) and the other symptoms included urolithiasis (89.5%), nephrocalcinosis (73.7%), urinary tract infections (52.6%), stunting (42.1%) and haematuria (31.6%). There was better correlation of identifying nephrocalcinosis on plain abdominal film compared to ultrasound. Five patients had A112D genetic mutation in the *AGXT* gene. ESRD was present in 17 patients at presentation of which 14 received dialysis. Only two patients had combined liver – kidney transplantation. The mortality rate in our cohort was 78.9%.

Conclusions
PH is a devastating disease due to its rapid progression to ESRD. This is reflected in our cohort with a high mortality rate of 78.9%. This is most likely due to the presence of ESRD at presentation and further reinforced by the fact that two patients demised prior to dialysis. Therefore recognising the disease prior to onset of ESRD would allow early referral and management in order to prevent ESRD and fast track for dialysis and transplantation. In clinical practice routine urine dipsticks at each clinic visit could assist in early referral as well as appropriate referral of haematuria.

041
The Incidence and Anti-Microbial Sensitivity of Urinary Tract Infections in HIV Positive and Negative Nephrology Patients at Inkosi Albert Luthuli Central Hospital in KwaZulu Natal Province, South Africa

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Background
Urinary tract infection is among the most common causes of sepsis presenting in hospitals. The aim was to collect data to enable empirical treatment of urinary tract infections in HIV negative and positive patients while waiting for urine culture results in order to reduce hospital stay.

Objectives
To assess incidence, antimicrobial susceptibility and outcomes of urinary tract infections in HIV negative and infected patients.

Methods
A retrospective charts review of nephrology patients admitted in January to December 2014 in Nephrology ward and the first 200 outpatients seen in Nephrology clinic in 2014 at Inkosi Albert Luthuli Central Hospital was conducted. Information was gathered with the use of a data collection sheet and urinary tract infection was based on urine culture results.

Results
The incidence of UTI in nephrology patients was 9%, 10.1% in inpatients and 6.5% in outpatients. Twenty – two % were HIV positive (0.883, 95% CI 0.550-2.003). 19% had Diabetes mellitus, 15 % had Systemic Lupus Erythematosus and 5% were post renal transplant patients. Escherichia coli and Klebsiella pneumonia were the common causes of urinary tract infection at 40.7% and 15.3% respectively with 2 cases on Extended beta lactam resistance and 15.3% mortality.

Conclusions
There was no statistical significant difference in the distribution of micro-organism isolates sensitivity between HIV infected and HIV negative nephrology patients with urinary tract infection. Escherichia coli and Klebsiella pneumoniae were the most commonly cultured organisms in both groups. There is an increasing microbial resistance to commonly used antibiotics.

044
Chronic Kidney Disease the Zimbabwean Situation

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Zimbabwe's health care system has gone through a hard time during the last two decades resulting in unprecedented suffering of patients with non-communicable conditions like chronic kidney disease (CKD).

There has not been any specific national policy on prevention, screening and management of chronic kidney disease. The emergence of HIV in the 1980s diverted all attention from other chronic illnesses including CKD. When Zimbabwe was put under political and economic sanctions just after the land reform program in 2001 the health care system took a huge knock that saw the closure of the only dialysis unit in the public sector and the inevitable death of almost all patients who were on dialysis then. In this presentation I intend to highlight challenges which continue to haunt CKD patients particularly those on dialysis in the public sector. The impact of medical tourism in our country will also be discussed. Finally, I will highlight recent successes in the care of CKD patients and outline our desired goals as we strive to improve the survival of patients with kidney diseases in the new Zimbabwe.

045
Crescentic Glomerulonephritis in Children: A Retrospective Study at Chris Hani Baragwanath Academic Hospital

Dr Sajeda Mansoor, Professor Udai Kala, Dr Karen Petersen

Introduction / Background
Crescentic glomerulonephritis as a cause of progressive renal failure is rare. Crescent formation represent a response to injury of the glomerular capillary walls in patients with glomerulonephritis.

Methods
A retrospective study conducted at Chris Hani Baragwanath Academic Hospital between 01 January 1990 to 30 June 2012. Children younger than 14 years who had crescents greater than 50% on renal biopsy were included from data extracted using the renal biopsy register and files.

Results
A total of 961 renal biopsies were performed. Fourteen patients (1.5%) met criteria.
Common findings were oedema (n=13, 92.9%), microscopic haematuria (n=12, 85.7%), hypertension (n=11, 78.6%) and proteinuria (n=10, 71.4%). All patients presented with acute renal injury. The median GFR was 23.9ml/min/1.73m^2.

Renal biopsies were done on average of 13.8 days from admission to hospital. On renal biopsy three patients (21.4%) had crescents which involved between 50-59% of glomeruli, six patients (42.9%) had crescents which involved between 60-79% of glomeruli, and five patients (35.7%) had crescents which involved greater than 80% of glomeruli. Acute post-infectious glomerulonephritis accounted for seven (50%) of cases, membranoproliferative glomerulonephritis, IgA nephropathy and chronic crescentic glomerulonephritis each accounted for two cases (14.3%) and immune-complex mediated diffuse proliferative glomerulonephritis accounted for one case (7.1%). Treatment included renal replacement therapy, methylprednisone and cyclophosphamide. The median duration from the time of presentation to treatment was 10 days.
At follow-up seven (50%) patients had a normal function, and six (42.9%) patients had progressed to chronic kidney disease. One patient (7.1%) defaulted follow up.
Patients who had an improved final renal outcome, had a lower creatinine at presentation. Poor renal outcomes were observed in patients who presented late and patients with fibrous crescents.

Conclusions
The patients suspected of having crescentic glomerulonephritis should be referred early, if there is deteriorating renal function, macroscopic haematuria and difficulty in controlling hypertension.

046
PD Peritonitis – Using Next Generation Sequencing to Identify Causative Organisms

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Peritonitis is a feared complication in peritoneal dialysis (PD) patients, and is often a significant hurdle to patient acceptance of PD. The majority of PD peritonitis' are treated successfully with a protocol driven outpatient approach, with minimal complications. However, PD peritonitis can become complicated, with recurrent peritonitis episodes, loss or damage of the PD membrane, sepsis or even encapsulating peritoneal sclerosis. The premise for protocol driven treatment of PD peritonitis is to give broad-spectrum antibiotics, then to de-escalate once a causative organism is cultured. However, in up to 20 percent of PD peritonitis, no causative organism is found, forcing the clinician to continue broad spectrum antibiotics, exposing the patient to unnecessary treatment, and its potential side-effects.

The utilization of next generation sequencing (NGS), to quantitatively and qualitatively identify bacterial pathogens via 16S rRNA gene polymorphisms, is an appealing approach to diagnose PD peritonitis. We report the findings of a pilot study conducted at the Steve Biko Academic Hospital Nephrology Unit, where we compared 16S rRNA NGS bacterial identification to conventional culture based techniques. While our findings show 100% concordance between conventional techniques and NGS, our findings also challenge the concept that PD peritonitis is caused by a single organism, have potentially identified two novel organisms and may have identified an infection pattern that suggests a non-bacterial pathogen.
This study was funded by the University of Pretoria Short Term Research Grant.

047

Demographic Profile of Patients with Anti-Neutrophil Cytoplasmic Antibody-Positivity and Glomerulonephritis in South Africa

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Introduction / Background
Rapidly progressive glomerulonephritis (RPGN) is a rare glomerulonephritis characterized by nephritic syndrome and rapid deterioration of renal function which, if left untreated, can lead to end stage renal disease, with severe implications on morbidity and mortality. A subset of RPGN, anti-neutrophil cytoplasmic antibody (ANCA) associated glomerulonephritis (ANCA GN), is a significant cause of RPGN and very little is known about ANCA associated glomerulonephritis in South Africa. In this study we retrospectively looked at the demographic profile of patients found to have ANCA GN, as well as their presenting biochemical characteristics and autoimmune profiles, in the hope that we would be able to identify a risk profile in South Africa.

Methods
A retrospective descriptive study was done looking at all patients on the National Health Laboratory Services database, and on the databases of private laboratories (i.e. Ampath and Lancet), who have had a positive ANCA result and a renal biopsy, in South Africa, in the last five years. Patients who had a renal biopsy not in keeping with recognised and accepted histology of ANCA associated glomerulonephritis, and those who had a typical biopsy but no supporting auto-immune laboratory work-up, were excluded from the study. The demographics (age, gender, race, income status), auto-immune profile and presenting biochemical features were collected from the laboratory databases by using a data collection sheet.

Conclusions
To the best of our knowledge, demographic, serologic and histologic studies of ANCA GN have not previously been done in South Africa, and thus this study will aim to provide novel information on this disease in South Africa. By identifying a risk profile for ANCA GN, this study is likely to assist clinicians in devising diagnostic strategies - not only for South Africa, but for other developing countries as well.

048

A Series of Unfortunate Events: A Case of Fatal Drug Induced Rhabdomyolysis

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Introduction / Background
Rhabdomyolysis is an uncommon but serious complication of statins and usually occurs in the setting of potentiating patient risk factors and concomitant use of other drugs. This case study illustrates this fatal drug interaction and aims to raise its awareness.

Methods
Mr JM presented with a four day history generalized body pain. He had a background of hypertension, HIV and dyslipidaemia. He was unsure of his medication but had the following drugs with him, amlodipine, simvastatin, lamivudine and lopinavir/ritonavir. On further posthumous investigation, it was found that he had a recent admission for a missed anterior ST elevation myocardial infarction (STEMI) and was started on 40 milligrams of simvastatin at that time. He was also on second line anti-retroviral regimen.

Results
The patient was treated with intravenous fluids and analgesia. His subsequent renal function results showed a rising creatinine and he became oliguric. His creatinine kinase levels were 10750 U/L. His clinical condition deteriorated and he demised later that day.

Conclusions
HIV positive patients are managed by all doctors in South Africa and because of the many comorbidities associated with HIV, they are often managed by multiple sub-specialists at a time. Although this is a necessity in the case of HIV patients, it also creates a potential for errors due to drug interactions. This case demonstrates a worst case scenario of this possibility and intends to draw focus on the need to be informed about potentially fatal drug interactions.

051
A High Prevalence of Chronic Kidney Disease in a Community Along Hadejia River Basin, North-Western Nigeria

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Introduction / Background
There were unconfirmed reports of higher cases of CKD from Hadejia, which is an irrigation farming community, along the Hadejia River Basin in North Western, Nigeria. There were similar reports of CKD epidemics in some communities from parts of the world such as the reported Aristolochic Acid Nephropathy along Danube River, Mesoamerican Nephropathy seen among agricultural workers in Nicaragua and later in many parts of Central America and the epidemic reported among irrigation farmers in Sri Lanka. This made us to design this crossectional study to get an insight into the true prevalence of CKD and its risk factors in Hadejia, which will help in the formulation of appropriate control measures. It will also lead to further studies into possible aetiologic factors.

Methods
Multistage sampling technique was used to select individuals 18years and above. The selected individuals were interviewed and physical examination conducted. Urine and blood samples were collected for laboratory analysis including Urinalysis, serum creatinine and estimation of GFR among others to evaluate for presence of CKD and its risk factors. Those with evidence of Kidney Disease were followed up with a repeat assessment after 3 months to confirm diagnosis of CKD.

Results
Eight hundred and sixty three of the 893 recruited completed the study. The mean age was 40.9 $\pm$ 16 years with male to female ratio of 2.2:1. The overall prevalence of CKD in Hadejia was 30.94% which is higher than reported community prevalence of CKD in Nigeria. The commonest CKD risk factors among the study population are Hypertension, use of traditional medications and use of analgesics. Regression analysis showed that age and high blood pressure were found to be independent predictors of CKD.

Conclusions
This study confirms high prevalence of CKD and its risk factors among this predominantly farming community along River Hadeja Basin. The call upon further studies to find out possible aetiologic agent and the institution of appropriate preventive measures.

052

Augmented Renal Clearance in Critically Ill Trauma Patients Admitted to Chris Hani Baragwanath Academic Hospital Intensive Care Unit: A Retrospective Review of Data

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Augmented renal clearance (ARC) is enhanced elimination of solutes by the kidneys. Patients with ARC have normal renal function and typically display a hyperdynamic circulation with increased cardiac output resulting in renal hyper-perfusion and increased creatinine clearance. The resultant enhanced elimination of renally cleared agents may be associated with sub therapeutic drug levels and lower minimum inhibitory concentration of antibiotics. Risk factors associated with ARC include trauma, young age and male gender. We conducted a retrospective review of 96 trauma patients admitted to ~~our~~ Intensive Care Unit (ICU) at Chris Hani Baragwanath Academic Hospital (CHBAH) during a one-year period to identify those with features of ARC. Of the 96 trauma patients admitted to CHBAH ICU over the study period, 40 met our inclusion criteria. Of these, 29 showed features of ARC. The majority of patients with ARC were male 75.9% (n=22), with a mean age of 32.3 years (SD11.9) and an age range of 18 to 56 years. Majority of these 82.7% (n=24) had undergone emergency surgery on admission and 86% (n=34) had required inotropic support. There was no significant difference in modified Sequential Organ Failure Assessment (SOFA) scores, Acute Physiology and Chronic Health Evaluation (APACHE) scores, or Injury Severity Scores (ISS) between patients with ARC and those who did not demonstrate this phenomenon as indicated by p value of greater than 0.05.

ARC is common in our South African ICU population, likely occurring in a substantial number of critically ill, ICU trauma patients. Trauma, the need for emergency surgery, male gender, and young age are likely to significantly influence the presence of ARC. The pharmacotherapeutic implications of patients demonstrating ARC should be considered. Further studies exploring the presence of ARC in other populations are still needed.

053

Socio-Economic Determinants, Regional Differences and Quality of Nephrological Research in Africa

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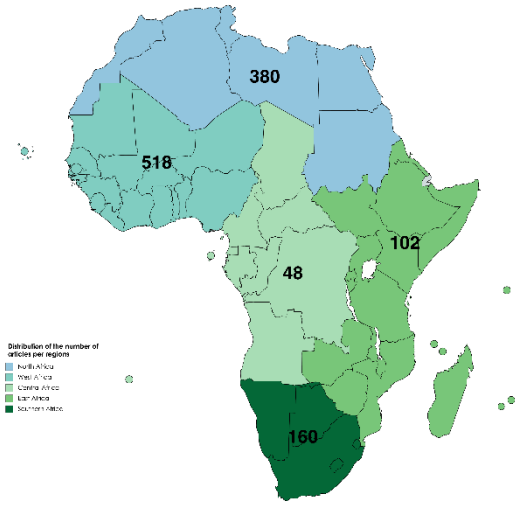
Introduction / Background
Given the global rising prevalence of chronic kidney disease (CKD), there is need to develop strategies through well-designed research that guides clinicians to improve diagnosis and delivery of care to CKD patients.

Although the quantity and quality of general medical research in Africa is thought to be sub-optimal; factors influencing nephrology research in Africa have not been studied.

Methods
We searched PubMed and African Journal Online to identify articles focused on nephrology research published between Jan 1, 1960, and May 31, 2017. They had to be done in Africa with focus on core areas in nephrology e.g. CAPD, HD, glomerulonephritis, CKD, AKI, tubular disorders, HIV and transplantation. We carried out analysis of these studies, including multi-variable regression analysis to determine regional quantities and qualities of research as well as factors associated with lead author of research.

Results
We selected 1,326 articles from 17,256 identified. Using first author as variable of interest, 91.4% of articles were from Africa (WA – 39.9%, NA – 29.3%, SA – 12.3%, EA – 7.9% and CA – 3.7%) while others were non-Africans (Fig 1). The top 5 countries of first author was Nigeria (31.7%), Egypt (13.5%), South Africa (12.2%), "Outside Africa" (7.0%) and Morocco (5.5%). However, the top 5 countries based on mean number of articles per 10 million population was Tunisia (55.3), South Africa (28.3), Senegal (26.0), Nigeria (22.2) and Morocco (20.1). Overall study types identified were cross-sectional (62.6%), case reports (12.4%), cohort (8.6%), case control (6.7%), reviews (4.7%), RCTs (1.4%) and others (3.6%). Only 37.3% were published in a journal with an impact factor (median IF =1.56). Using multivariable regression, population was the only factor associated with country of first author (1.26 [95%CI: 0.85 – 1.68]; P<0.0001). GDP, HDI, literacy rate or number of physicians did not play a role.



Conclusions
Our study shows that the quality of nephrology research in Africa is still low (based on low proportion of RCTs and low IF publications). Country wealth (GDP and HDI) should be leveraged to improve the quality of research in Africa.

054

Assessing the Role of Urinary Monocyte Chemoattractant Protein – 1 (MCP-1) In Monitoring Treatment Response in Patients with Active Lupus Nephritis in Cape Town

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Introduction / Background
There is need for judicious use of immunosuppression in patients with active lupus nephritis (LN) and this is guided by how well patients have responded to treatment. Currently, treatment response is monitored using

markers such as urine protein-creatinine ratio (UPCR) and serum creatinine which are not very accurate in assessing inflammation within the kidney. Measured in the urine, novel biomarkers such as MCP-1 which are secreted within the kidney may be more useful in monitoring disease activity within the kidneys. We assessed the utility of urine MCP-1 at 6 months following initial treatment of LN in newly biopsied patients.

Methods
The study was approved by our local ethics committee. We recruited 20 consenting patients with active LN confirmed on a recent kidney biopsy. Relevant baseline demographic, biochemical and histological information was collected from the patients. Urine was also collected for ELISA assay of MCP-1 at baseline and a repeat assay was performed after 6 months. Urine collection, storage and assessment followed described process. Results are presented as median (min- max).

Results
There were 14 females and 6 male patients; mean age was 29.8 ± 10.7 years, 60% were of mixed ancestry and 70% had proliferative LN. Only 20% received MMF for induction therapy and most patients had achieved partial or complete remission after 6 months of therapy. At 6 months, there was significant reduction from baseline for UPCR (0.37 (0.12 – 0.86) vs 0.06 (0.001 – 0.52); p<0.0001) and urine MCP-1 (1440.2 [409.1 – 5362.2] vs 484.2 [21.9 – 2472.5]; p=0.033). However, there was no significant change in serum creatinine from baseline to 6 months (104.0 [39.0 – 1104.0] vs 90.5 [51 – 192]; p = 0.272).

Conclusions
Our study shows that urine MCP-1 is useful monitoring disease response in patients with active LN. Further studies are needed to assess the sensitivity and specificity of this biomarker for monitoring treatment response.

* This study received funding from the National Research Foundation (NRF) competitive grant for rated researchers (CPRR150703122950; Grant #: 98990).

056

Screening for Fabry Disease in Chronic Haemodialysis Patients in South Africa

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Background
Fabry disease is a rare genetic disorder which results in a deficiency of the enzyme alpha-Galactosidase A (a-Gal-A). This causes accumulation of lipid called Globotriaosylceramide (Gb3).
Manifestations include kidney, cardiac and neurological disease. Fabry disease is often misdiagnosed due to its rarity. Patients on dialysis often have unknown causes of kidney failure. Screening studies in dialysis populations have demonstrated a prevalence of Fabry disease of approximately 0,3%. Data is unavailable in sub-Saharan Africa. Treatment, although expensive, is available. We aimed to determine the prevalence of Fabry disease in the haemodialysis population in South Africa.

Methods
We received permission to perform screening tests, after ethics approval in all Fresenius and National Renal Care haemodialysis units in South Africa. Consent was obtained from consulting physicians and all patients after pre-test counseling. Dry blood spot testing was performed to screen for lysosomal Gb3, a-Gal-A levels and the GLA genetic variants.
Patients with abnormal GLA variants were classified based on lyso-Gb3, a-Gal-A and family and clinical history. This represents an interim analysis of patients screened until July 2018.

Results
1261 tests were performed in 35 dialysis units. 1080 results have been received. 1072 results are negative. Five confirmed or possible cases in dialysis patients have been identified. The following mutations have been

identified - Thr385Ala in two patients; Asp313Tyr in two patients; Asn215Ser in one patient. In addition, one family member was identified with a pathological mutation on pedigree analysis. We describe individual cases in our study. The above represents a possible prevalence of 0.46%.

Conclusion
Our screening study demonstrates at least three different mutations associated with Fabry disease in South African patients. The prevalence in the test results received so far are similar to other reported studies elsewhere in the world.

059
Lipid Profile in Chronic Renal Failure Patients in the Department of Internal Medicine at Kamenge University Hospital, Burundi

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Introduction / Background
Dyslipidaemia is one of the cardiovascular risk factors responsible for cardiovascular disease and rapid progression of chronic kidney disease (CKD) to end stage renal disease. Early detection and management of dyslipidaemia will reduce cardiovascular burden and retard progression of CKD.

Methods
This is a prospective and descriptive study conducted at Kamenge University Hospital, from March 2014 to February 2015, in the Department of Internal Medicine. We studied the quantitative and qualitative variations of lipids in patients with chronic renal failure to determine the prevalence of dyslipidaemia.

Results
Thirty-three patients were included, 22 (66.6%) men and 11 (33.4%) women. The average age was 56.6 ± 10.4 years and the most affected age group (42.40%) was 56-65 years old. Twenty five (75.8%) patients were from urban areas, 20 (60.6%) were unemployed, 18 (54.5%) were with history of alcohol intake and 3(9.1%) with history of smoking. The principal comorbidities were hypertension (78.8%) and diabetes (63.6%). Twenty patients (60.6%) were of normal weight, 5 (15.2%) were overweight and 8 (12.2%) were obese. According to MDRD, 14 patients (42.42%) were stage V, 9 patients (27.27%) stage IV, 9 patients (27.27%) stage IIIb and 1 (3.03%) stage IIIa . The average triglyceride level was 1.8142 ± 1.1580 mmol / l. Lipid profile was hypertriglyceridemia (34.6%), hypercholesterolemia (15.1%), high HDLc (27.2%) and high LDLc (18.1%). The atherogenicity index was high in 11 (33.3%) patients.

Conclusions
Lipid abnormalities are common in patients with chronic renal failure. We recommend early evaluation of CKD patients for dyslipidaemia using ratio of lipid components at all stages with the aim of management with both lifestyle modification and therapeutic intervention.

060
Point-of-care Creatinine Testing in a Nephrology Outpatient Clinic in an Academic Hospital: An Evaluation of Analytical Performance

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Introduction / Background
We evaluated the diagnostic accuracy of the Nova StatSensor® creatinine point-of-care (POC) testing system in a nephrology outpatient clinic. We determined the need and reasons for requesting urgent creatinine measurements, audited the existing operating procedure and compared capillary and venous POC measurements.

Methods
Paired capillary and venous POC measurements were compared to laboratory measurements on the Roche cobas® 6000 analyser, which uses an enzymatic method. The need and reasons for urgent measurements were determined by physician-applied questionnaires. The TrakCare® laboratory database was used to evaluate the existing operating procedure.

Results
Urgent measurements were required in 20% (49/245) of patients to guide decisions around dialysis initiation (20%, 10/49) and to monitor kidney disease progression (18%, 9/49). The median time (interquartile range, IQR) to obtain an urgent creatinine result was 434 min (266-525 min). This was mainly due to delays in sample registration (median 250 min, IQR 100-346 min).
Paired POC measurements (209) were compared to laboratory measurements (range 40 -1749 µmol/L). Many POC measurements exceeded the total allowable error (8.8%) and the minimal acceptable total error (11.4%). A negative bias was seen at higher levels. The Statsensor® demonstrated good sensitivity and specificity for detecting reduced estimated glomerular filtration rates (eGFR <60) on capillary and venous blood. POC measurements on venous blood had a lower sensitivity for detecting eGFR <10 than capillary blood (65%, 95% CI 43-84% vs 91%, CI 72-99%). There was a bias of -18.9 (-101.8 – 63.7) between capillary and venous POC measurements. Patients were assigned the same CKD stage with capillary and venous measurements in 77.5% of cases (kappa coefficient 0.73, p <0.05).

Conclusions
There is an unmet need for immediate assessment of kidney function. The Nova Statsensor® is not accurate enough to determine exact creatinine measurements. Capillary rather than venous blood should be used for POC measurements.

This research was funded by the National Health Laboratory Service of South Africa.

061
The Point Prevalence of Children on Renal Replacement Therapy in South Africa for 2017 and for 2018

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Introduction
The true incidence and prevalence of chronic kidney disease (CKD) in South Africa (SA) is unknown. The prevalence of children on renal replacement therapy (RRT) in Europe is approximately 62.1 pmarp and South Africa has around 16.7 million children under 15 years of age. Given these numbers we estimate that at least 1000 children should be on RRT at any one time in South Africa.

Aim
To determine the point prevalence of children on RRT in SA for 2017 and for 2018

Method
A telephonic survey was conducted of all paediatric nephrology units in SA offering a dialysis service. A request for information was also posted on the SARS WhatsApp group. All the paediatric units and three adult units responded. Data was captured on the current number of children on chronic RRT in each unit and on the RRT mode.

Results
95 children were on chronic RRT for both years with equal numbers on HD and PD. Of the PD patients more were on APD than on CAPD.

Conclusions
We found that less than 10% of the 1000 expected were on dialysis. The reasons for the stability of the number of children on dialysis from 2017 to 2018 were likely to be due to old patients coming off dialysis either due to transplantation or death.
Further research should investigate the incidence of ESKD amongst children in SA, and also the reasons for such low dialysis numbers given the size of our population. Issues such as missed diagnosis of ESKD, lack of referral for RRT and denial of RRT need to be explored if we are to give all children in ESKD in SA an equal chance of access to this life saving treatment.

Funding: Dr Mahlase is currently the Nelson Mandela Children's Trust Fellow in Paediatric Nephrology.

063

Crescentic Glomerulonephritis in Children: A Retrospective Study at Chris Hani Baragwanath Academic Hospital

Dr Sajeda Mansoor, Professor Udai Kala, Dr Karen Petersen

Introduction / Background
Crescentic glomerulonephritis as a cause of progressive renal failure is rare. Crescent formation represent a response to injury of the glomerular capillary walls in patients with glomerulonephritis.

Methods
A retrospective study conducted at Chris Hani Baragwanath Academic Hospital between 01 January 1990 to 30 June 2012. Children younger than 14 years who had crescents greater than 50% on renal biopsy were included from data extracted using the renal biopsy register and files.

Results
A total of 961 renal biopsies were performed. Fourteen patients (1.5%) met criteria.
Common findings were oedema (n=13, 92.9%), microscopic haematuria (n=12, 85.7%), hypertension (n=11, 78.6%) and proteinuria (n=10, 71.4%). All patients presented with acute renal injury. The median GFR was 23.9ml/min/1.73m^2.
Renal biopsies were done on average of 13.8 days from admission to hospital. On renal biopsy three patients (21.4%) had crescents which involved between 50-59% of glomeruli, six patients (42.9%) had crescents which involved between 60-79% of glomeruli, and five patients (35.7%) had crescents which involved greater than 80% of glomeruli. Acute post-infectious glomerulonephritis accounted for seven (50%) of cases, membranoproliferative glomerulonephritis, IgA nephropathy and chronic crescentic glomerulonephritis each accounted for two cases (14.3%) and immune-complex mediated diffuse proliferative glomerulonephritis accounted for one case (7.1%). Treatment included renal replacement therapy, methylprednisone and cyclophosphamide. The median duration from the time of presentation to treatment was 10 days.
At follow-up seven (50%) patients had a normal function, and six (42.9%) patients had progressed to chronic kidney disease. One patient (7.1%) defaulted follow up.
Patients who had an improved final renal outcome, had a lower creatinine at presentation. Poor renal outcomes were observed in patients who presented late and patients with fibrous crescents.

Conclusions

The patients suspected of having crescentic glomerulonephritis should be referred early, if there is deteriorating renal function, macroscopic haematuria and difficulty in controlling hypertension.

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Traditional and Non-Traditional Cardiovascular Risk Factors in the Chronic Dialysis Population at Chris Hani Baragwanath Academic Hospital and Sebokeng Provincial Hospital

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Background
The link between chronic kidney disease (CKD) and cardiovascular disease (CVD) is well established. Even from the earliest stages of CKD, patients are at significantly elevated risk from CVD related events such as cerebrovascular accident and myocardial infarction. There is significant data that point to the contribution of non-traditional risk factors towards CVD in those patients with CKD. These non-traditional risk factors are often poorly recognised and managed within the CKD population, resulting in premature morbidity and mortality.

Methods
All patients 18 years or older; on the chronic dialysis programme at Chris Hani Baragwanath Academic Hospital(CHBAH) and Sebokeng Provincial Hospital(SPH) were included in this audit. Recent records were used to collect data including: demographics, medical history, chronic medication, clinical and laboratory data such as blood pressure, body mass index, random blood glucose, lipogram, uric acid, haemoglobin and iron studies.

Results
Complete clinical and laboratory data was available for 176 patients (77 Peritoneal dialysis and 99 haemodialysis). Preliminary analysis showed that while HIVAN was the cause of CKD for 9% of patients, hypertension accounted for 60%. Analysis showed that 55% of patients had uncontrolled blood pressure and 44% had a BMI over 25, both modifiable risk factors for CV events. Analysis of non-traditional risk factors shows that 86% of women and 89% of men were anaemic, while 37% of patients had an elevated parathyroid hormone level.

Conclusions
The prevalence of traditional and non-traditional risk factors is elevated in the chronic dialysis population of CHBAH and SPH. Traditional risk factors need to be optimally managed by developing standardised treatment targets for the dialysis population. Further prospective studies are needed to evaluate the CV impact of non-traditional risk factors and to demonstrate whether modifying non-traditional risk factors provides benefit with regards to CV endpoints.

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The Microbial Burden and Antibiotic Profile of Paediatric Bacterial Urinary Tract Infections at a Tertiary Hospital in the Western Cape, South Africa

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Introduction / Background
Urinary tract infection (UTI) is a common problem in infants presenting to emergency units with fever. Current international data reports that uropathogens and their associated antibiotic susceptibly are evolving. This study describes the organism profile and inherent antibiotic resistance pattern at a tertiary hospital in the Western Cape, South Africa.

Methods
A retrospective study on all urine samples sent to the National Health Laboratory Service (NHLS) from 1 January 2012 – 31 December 2013 at Tygerberg Hospital was performed. UTI was defined as a single organism growth >10^5 cfu/ml and leukocytes >1000 cells/ml. The organisms and antibiotic sensitivities were described and further correlated with community, hospital associated or hospital acquired infections, HIV status and blood culture results were also determined.

Results
282 samples met the definition for inclusion in the study. *E. coli* was cultured most frequently (143/50.7%) followed by *K. pneumoniae* (64/22.7%) and *P. mirabillis* (13/4.6%). Extended spectrum beta lactamase (ESBL) producing organisms accounted for 75/64.1% of UTI; K. pneumoniae accounted 54/72% of those infections. Most ESBL infections were hospital acquired (32/42.7%). *E. coli* was 90.8% resistant to amoxicillin/ampicillin and 71.8% to TMP/SMX. *K. pneumoniae* was 88.7% resistant to co-amoxiclavulanic acid and 98.2% to cefotaxime/ceftriaxone. HIV status was not predicative of organism resistance; numbers in the HIV group were too small to be statistically significant.

Conclusions
The organism population and antibiotic sensitivity profile is evolving with international data trends. Of ESBL-producing organisms, 1/6.7% of *E. coli* were sensitive to piperacillin-tazobactam and 5/33.3% to amikacin. *K. pneumoniae* displayed 10/18.5% and 37/68.5% sensitivity to piperacillin-tazobactam and amikacin respectively. These antibiograms support current hospital policy to treat hospital associated and acquired infections with these antibiotics empirically until urine culture and sensitivity are available thereby limiting carbapenem drug pressure. Further data is required looking at the influence of HIV of UTI and risk factors for the development of resistance.

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TMPRSS6 RS 855791 Polymorphism and Susceptibility to Iron Deficiency Anaemia in Non-Dialysis Chronic Kidney Disease Patients in South Africa

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Introduction / Background
The Transmembrane protease 6 gene (TMPRSS6) encodes matriptase-2. The TMPRSS6 allele A 736V (rs 855791) is related to significantly lower levels of serum iron, transferrin saturation, haemoglobin, and mean corpuscular volumes in genome-wide association studies in the general population. Whether this genetic variant influences the susceptibility to iron deficiency anaemia (IDA) in chronic kidney disease (CKD) patients has not been studied.

Methods
This was a cross sectional study of black adult participants (n=260) with CKD and healthy controls (members of staff and patients' relatives) (n=146) at the Charlotte Maxeke Johannesburg Academic Hospital, South Africa. Analysis of their complete blood counts and genotyping of rs 855791 was undertaken using polymerase chain reaction -restriction fragment length polymorphism (PCR)-RFLP.

Results
The prevalence of anaemia in the CKD patients and control groups was (46.9%), and iron deficiency occurred in (26.1%.). There were similar rs 855791 C homozygotes in both the iron deficiency and non-iron deficiency anaemia groups (86.1% vs 84.2%, p=0.723), when the analysis was confined to subjects with or without functional iron deficiency anaemia; C homozygote (88.3% vs 84.4%, p=0.425) was similar for both groups.

Conclusions

Our study suggests that homozygosity for TMPRSS6 rs855791 C genotype does not influence IDA in non-dialysis CKD patients.

Key words: iron deficiency anaemia, CKD, TMPRSS6, rs 855791.

067

The Prevalence of Depression in CKD 5 patients on Renal Replacement Therapy, Associated Risk Factors and Common Presenting Features

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Background
A high prevalence of depression exists in patients with end stage renal failure (ESRF). Studies have shown that 15%-60% of patients with ESRF are diagnosed with depression, a rate 3-4 times higher than that estimated for the general population and 2-3 times higher than in other chronic illnesses. The presence of depression in ESRF patients is associated with decreased quality of life, non-compliance to medical treatment, worsening of nutritional status, higher risk of withdrawal from dialysis, increased hospitalisation and increased mortality. Common risk factors for depression include younger age, female gender, white race, longer duration of dialysis and co-morbid illnesses such as cardiovascular disease. Despite occurring commonly in patients with ESRF, depression is under-recognized and under-treated due to the similarity between depression symptoms and uremic symptoms, and a lack of awareness among clinicians. Identifying depression is key to improving treatment outcomes and patient survival.

Methods
This study looked at patients on chronic haemodialysis or peritoneal dialysis at three major centres in Johannesburg. The Beck Depression Inventory (BDI) is used as a screening tool to assess for clinically significant depression. Laboratory data, information regarding dialysis vintage, drugs, and comorbid illnesses is obtained from the patient files. A BDI score of 15 was used to detect clinical depression and patients in whom the diagnosis is made will be referred for further clinical evaluation.

Results
All patients on haemodialysis or peritoneal dialysis who qualified were approached. A significant proportion (12%) declined to participate citing reasons such as not willing to undergo formal psychiatric review due time constraints outside their dialysis time. Depression symptoms were identified in about 40% patients interviewed. The common symptoms identified were depressed affect, loss of energy, and feelings of apathy. Scores positive for depression were above 30 indicating moderate to severe depression.

Conclusion
The results of this study indicate that clinical depression is a common comorbidity in CKD 5 patients on dialysis and results will help to inform practices surrounding the diagnosis and management of depression in ESRF patients on dialysis in our population.

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Prevalence of Risk Factors for Chronic Kidney Disease in South African Youth with Perinatally- Acquired HIV

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Introduction / Background

Little is known about renal pathology among perinatally HIV-infected children and adolescents in Africa. We assessed the prevalence of risk factors for chronic kidney disease in South African children and adolescents with perinatally acquired HIV-1 (HIV+) on antiretroviral therapy (ART) and HIV negative children and adolescents.

Methods
HIV+ youth aged 9-14 years, on ART for >6 months and age matched HIV negative children and adolescents were eligible for assessment via urine dipstick and microalbuminuria. Blood pressure, glomerular filtration rate, HIV-related variables and metabolic co-morbidities were assessed at enrolment**.**

Results
Amongst 620 children and adolescents, 511 were HIV+. The median age was 12.0 years and 50% were female. In HIV+, 425 (83.2%) had a CD4 count >500 cells/mm3 and 391 (76.7%) had an undetectable viral load. The median duration of ART was 7.6 years (IQR: 4.6-9.3) with 7 adolescents receiving Tenofovir. The prevalence of any proteinuria or microalbuminuria was 6.6% and 8.5% respectively, with no difference between HIV+ and negative children and adolescents. All participants had a normal glomerular filtration rate.

Conclusions
Proteinuria and microalbuminuria appeared uncommon in this population. Follow up of those with microalbuminuria may inform long term outcomes and management of this growing population of HIV+ youth.

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The Effect of Distance from Hospital on Referral for Paediatric RRT, Nelson Mandela Children's Hospital, Johannesburg, South Africa

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Introduction
There are 7 million children under the age of 15 years in Gauteng, Limpopo and Mpumalanga. NMCH provides a dialysis service to 18/94 (19%) of the children on RRT across South Africa and 18/70 (26%) of all paediatric patients on RRT from Gauteng, Limpopo and the surrounding provinces. The prevalence of children on RRT in Europe is approximately 62.1 pmarp and we estimate that there should be 400 children on RRT in our area. Reasons for low RTT numbers might include low rates of referral and acceptance onto the dialysis program for patients who live far away.

Aim
To document the effect distance has on our patient numbers

Method
A cross sectional study performed in August 2018 of patients on chronic RRT at NMCH documenting their demographic details and distance from their home town to the hospital

Results
16 children were on dialysis (M:F = 0.5), 56% on IHD and 44% on PD. The main causes of renal failure were FSGS (37.5%) and CAKUT(18.5%). 11/16 (69%) come from within 175km of our centre and include 10/11 (90%) who live within 50km. 4/16(25%) live between 175-300km away and 1/16 (6.25%) lives more than 300km away.

Conclusion

The radius of Gauteng is 175km and, although 69% of our patients live within this distance, only 50% of the children in the area we drain are from Gauteng. Of the patients who live further away 25% are from within 175-300km of the centre and only 1/16 is from further than 300km away.

Further research is needed to understand what happens to children in ESKD who come from further than 300km away. If the other units in the area are not caring for them then it implies a significant lack of equity and disadvantage for children living far away from a central renal unit.