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Gastroscopy Blitz: 125 scopes in 2 days

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Background. The burden of gastroenterological disease in South Africa is increasing. With this increased burden come increased challenges in service delivery and patient care. In October 2018, the waiting list for elective upper gastrointestinal endoscopy was >500 patients, which translated to a 9-month waiting period. With this in mind, the Division of Gastroenterology at Tygerberg Hospital embarked on a Gastroscopy Blitz, which took place over 2 days in an effort to decrease elective waiting times.

Objectives. To describe the findings of the 2018 Tygerberg Gastroscopy Blitz, which took place in December 2018.

Methods. A retrospective data review and analysis of findings obtained from the 2018 Tygerberg Gastroscopy Blitz

Results. Our data included 125 patients. The mean age was 48 years (range 20 - 108) and the female-to-male distribution was 92:33. The top three indications for endoscopy were heartburn (35%), dyspepsia (28%) and abdominal pain (25%). The top three diagnoses on endoscopy were gastritis (46%), hiatus hernia (19%) and ulcer (6%), and in 21% of cases the endoscopy was normal. Biopsies were done in 20 patients; in 70% of the patients the specimen showed gastritis, and in 7 of these, *Helicobacter pylori* was detected. Of the rest of the biopsy specimens, 2 showed neoplasms and 1 lymphangiectasia, and 1 was normal.

Conclusions. The patient-centred 2018 Tygerberg Gastroscopy Blitz was a successful initiative that reduced patient waiting times for elective upper gastrointestinal endoscopy. It provided valuable information about our patient profiles, symptomatology and disease profiles. Most importantly, the Blitz highlighted the increase in the burden of gastroenterological disease in Cape Town and successfully addressed the needs of our patients over a short period of time.

Hepatocellular carcinoma: Clinicopathological features and HIV infection in Mozambican patients

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Background. Hepatocellular carcinoma (HCC) is the third most common cause of cancer death worldwide. Mozambique has been ranked among the countries with the highest global incidence of HCC, with chronic hepatitis B infection and high exposure to aflatoxin-B1 being major risk factors. The recently implemented hospital-based cancer registry at Maputo Central Hospital shows that liver cancer remains the third and fourth most frequent cancer in Maputo in men (13.1%) and women (6.7%). In Mozambique, interest in HCC has been renewed owing to the high prevalence of HIV in the general population, since HIV is considered a potential modulator of liver tumorigenesis, and in the presence of co-infection

with hepatitis B virus (HBV) can accelerate progression to cirrhosis and HCC.

Objectives. To describe the epidemiology and clinicopathological and serological features of patients with HCC in Maputo Central Hospital and the relationship of HCC with HIV.

Methods. A series of 206 patients diagnosed with HCC via fine-needle aspiration were consecutively included in the study, after giving consent. Patient data were collected using a questionnaire. The median age was 49 years and the male/female sex ratio was 2.4. A total of 114 (56.2%) of the patients were hepatitis B surface antigen (HBsAg)-positive. Hepatitis C antibodies were present in 8.9% of cases, and co-infection with HBV and hepatitis C virus (HCV) (HBsAg/anti-HCV) was observed in 4 cases (2.0%). The remainder, 36.3%, were neither hepatitis B nor C related. HIV was detected in 34 cases (18.0%). HIV-HBV or HIV-HCV co-infections were observed in 22 (68.8%) and 2 (6.2%) cases, respectively. Overall, positivity for HIV was associated with younger age, especially in patients who were HBsAg-positive/anti-HCV-positive.

Conclusions. Our data emphasise the need for reinforcement of secondary prevention measures in Mozambique. Serological screening for HBV in people born before the advent of universal anti-hepatitis B immunisation (2001), effective screening, and specific management in HIV-positive patients are urgently needed.

An unusual case of 'autoimmune (-like)' liver injury induced by herbal supplements seen at Dr George Mukhari Academic Hospital

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Background. The evolving complexity of autoimmune hepatitis (AIH) has generated multiple diagnostic and management challenges. These challenges reflect difficulties in recognising the condition's diverse clinical phenotypes.

Case report. A 26-year-old man presented in 2016 with a 1-week history of jaundice, itching, weight loss, nausea and vomiting. He admitted to chronic use of herbal medications, but denied alcohol intake, cigarette smoking and intravenous drug use or any history of diarrhoea, rectal bleeding or urinary tract infection. Physical examination showed signs of acute hepatitis. A few months later, he developed finger clubbing (grade 4) and suprapubic discomfort. The liver span and findings on digital rectal examination were unremarkable. **Investigations.** Serum transaminases, gammaglobulins, immunoglobulins (IgG) and gamma-glutamyl transferase were raised, serum autoimmune antibodies were negative, and negative serum antinuclear antibody subsequently became positive. An abdominal ultrasound scan was unremarkable. Liver biopsy showed inflammation in the portal tracts with interface hepatitis. A computed tomography scan of the abdomen showed bilateral hydronephrosis. Cystoscopy and biopsies showed cystitis cystica and glandularis

originating from a bladder mass. Colonoscopy and biopsies showed chronic left-sided ulcerative colitis (UC). Coronal magnetic resonance cholangiopancreatography demonstrated early primary sclerosing cholangitis (PSC) mimicking a beaded appearance.

Discussion. The patient improved on prednisone, azathioprine and ursodeoxycholic acid as prescribed in AIH, PSC and UC. The diagnosis was the overlap syndrome with AIH and primary sclerosing cholangitis superimposed on ulcerative colitis and cystitis cystica glandularis. We used revised diagnostic criteria scoring for AIH (total score 17).

Conclusions. These findings suggest that PSC exists in an occult state with normal serum alkaline phosphatase in ulcerative colitis, and that bladder-bowel dysfunctions may coexist. Only through meticulous evaluation, exclusion of differential diagnoses and prolonged follow-up can a correct diagnosis be reliably made.

Age and alarm symptoms are strong predictors of significant endoscopic findings in patients in South Africa

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Background. Alarm symptoms are commonly used to identify patients who require endoscopy to rule out significant upper gastrointestinal (GI) pathology. These alarm symptoms have not been validated in the South African (SA) context.

Objectives. To identify which alarm symptoms (i.e. age >45 years, upper GI bleed, dysphagia, weight loss, anaemia, dyspepsia) are predictors of significant endoscopic findings (stricture, ulcer, tumour).

Methods. A retrospective chart review of 1 000 consecutive endoscopies done at Madadeni Provincial Hospital, KwaZulu-Natal, from 2014 to 2016 was performed. Demographic data, indication for endoscopy (upper GI bleed, dyspepsia, dysphagia, anaemia, weight loss, age) and significant endoscopic findings (tumour, ulcer, stricture) were recorded. Multivariate logistic regression analysis was done to identify risk factors for a positive endoscopic finding.

Results. On analysing the 1 000 endoscopies, the median patient age was found to be 51 years (range 14 - 88). The frequency of alarm symptoms was as follows: upper GI bleed $n=166$, 16.6%; dyspepsia $n=584$, 58.4%; dysphagia $n=10.3$, 10.3%; anaemia $n=35$, 3.5%; and weight loss $n=3$, 0.3%. Dysphagia (OR 5.73, 95% CI 2.05 - 16.0; $p<0.001$), age >45 years (OR 3.26, 95% CI 2.09 - 5.08; $p=0.001$) and male gender (OR 1.54, 95% CI 1.04 - 2.28; $p=0.031$) were strong predictors of a significant finding on endoscopy. Oesophageal cancer was the cause of dysphagia in 56% of cases.

Conclusions. Alarm symptoms, namely dysphagia, age >45 years and male gender, are important positive predictors of significant endoscopic findings in patients in SA. The prevalence of oesophageal cancer associated with dysphagia is high.

Frequency of gastrointestinal stromal tumour in the pathological anatomy service at Maputo Central Hospital, Mozambique, 2003 - 2018

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Background. Gastrointestinal stromal tumour (GIST) is a mesenchymal tumour of smooth-muscle origin that represents 0.1 - 3% of all gastrointestinal tumours. It occurs in the stomach (60 - 70% of cases), small intestine (25 - 35%), colon and rectum (5%) and oesophagus (<2%) and has its origin in the interstitial cells of Cajal, expressing the c-Kit protein. GISTs are rare worldwide, representing 1 - 3% of all gastric tumours. In the USA, 5 000 new cases occur annually. The tumour does not have racial or gender preference, and occurs mainly between the 5th and 6th decades of life. The most frequent clinical presentation is upper gastrointestinal bleeding (haematemesis or melaena in 40 - 65% of patients).

Objectives. To evaluate the frequency of GISTs diagnosed in the pathological anatomy service at Maputo Central Hospital during the years 2003 - 2018.

Methods. A retrospective analysis was performed of all cases of GIST diagnosed in the pathological anatomy service at Maputo Central Hospital during the 16-year study period, based on the database used in the service.

Results. During the study period, 42 cases of GIST were diagnosed. The prevalence was highest in 2011 and 2018 (6 cases), followed by 2010 and 2015 (5 cases), and lowest in 2007, during which no case was diagnosed. Of the patients, 26 were male (62%) and 16 female (38%), with a mean age of 58.6 years for males and 54.1 years for females; an immunohistochemical study was performed in 15 cases. The frequency of GISTs per organ was as follows: oesophagus 2 cases, gastric 28 cases, large intestine 8 cases, small intestine 3 cases, and peritoneum 1 case.

Evaluation of a molecular technique to describe gut microbial diversity in a diagnostic laboratory

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Background. The characterisation of microbial gut diversity has become an important consideration in a variety of diseases of the gastrointestinal tract. Advances in gut microbiome research with the development of cost-effective genome sequencing allow for complete investigation of this complex microbial community.

Objectives. A targeted metagenomics approach on the Ion Torrent (Thermo Fisher Scientific, USA) sequencing platform was investigated for characterisation of gut microbial diversity and the abundance of gut microbial constituents.

Methods. This approach was evaluated on stool samples from the following clinical cases: a patient with a primary immunodeficiency, a second with inflammatory bowel disease, and a third with Gram-negative sepsis. Each case had a history of extensive antibiotic use. Total genomic DNA was extracted and library preparation was done using the Ion 16STM metagenomics kit. Sequence analysis was done using the metagenomics workflow in the Ion Reporter™ Software. Composition and abundance of the gut microbiome was demonstrated using a Krona chart. The Shannon diversity index was chosen to represent diversity analysis.

Results. Targeted sequencing of seven hypervariable regions of the 16S rRNA gene enabled taxonomic identification from phylum up to species level. Gut diversity analysis led to identification of gut dysbiosis associated with gastrointestinal disorders and the detection of multidrug-resistant organisms. A snapshot of the composition of the gut microbiome, including proportion and abundance of each taxonomic assignment, was obtained.

Conclusions. In a single sequencing approach, the structure, composition, abundance and diversity of the gut microbiome related to each clinical case was obtained. Changes in the gut diversity that occur in disease states and during antibiotic treatment can be investigated using this approach. Multidrug-resistant organisms can be characterised and a resistome profile can be developed. Local access to this technique will encourage South African research into the link between the gut microbiome and disease.

Investigating for a relationship between *Helicobacter pylori* and site and histological subtype of gastric adenocarcinoma presenting to Groote Schuur Hospital

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Background. Gastric cancer (GC) is the fifth most common cancer, with a high mortality due to delayed clinical presentation. Geographical, ethnic and socioeconomic factors have been reported to influence incidence, presentation and survival.

Objectives. The primary objective was to investigate the relationship between the site and histological subtype of the gastric malignancy and the presence of *Helicobacter pylori* (HP) infection in patients presenting with GC to Groote Schuur Hospital. Secondary objectives included specific demographic data associated with GC and resectability on presentation.

Methods. A retrospective audit was performed of GC patients presenting between 1 July 2011 and 31 December 2017.

Results. During the study period, 367 new GCs were seen and 152 patients were analysed (215 were excluded: 119 had distal GCs referred for palliative stenting, and 96 Siewert type I and II tumours managed as oesophageal malignancies). Of the 152 patients analysed, 98 (64.5%) were male (mean age 62.1 years, standard deviation (SD) 11.7) and 54 (35.5%) female (mean age 60 years, SD 11.4). Twenty patients (13.1%) were black African, 110 (72.4%) of mixed ethnicity, 13 (8.6%) white and 9 (5.9%) other. Fifty-two (35.1%) patients were deemed to have irresectable tumours following a primary staging computed tomography scan. If all patients with GCs are included (152 analysed plus 119 who had palliative stents inserted), only 12.9% underwent curative resection. The incidence of HP was 14.5%. HP positivity was not significant with regard to tumour position or ethnicity. HP-negative tumours were more likely to be of the intestinal subtype. No significant association was found between smoking and tumour position or between smoking and tumour type (intestinal v. diffuse).

Conclusions. The low HP incidence in our GC patients possibly supports the existence of the African enigma; however, with the current literature in mind, much remains undetermined. Tumour type and position were not significantly related to the presence of HP.

Awareness and vaccine coverage of hepatitis B among Cameroonian medical students

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Background. The endemic nature of hepatitis B virus (HBV) in sub-Saharan Africa is a significant public health problem that places healthcare providers (including medical students) at increased risk of occupational exposure. However, vaccination against HBV is not routine among medical students in Cameroon.

Objectives. To evaluate awareness and HBV vaccine coverage among medical students in Cameroon.

Methods. Using a semistructured questionnaire and a cross-sectional approach, medical students from three state universities in Cameroon were evaluated for their knowledge of, attitudes to and vaccination status against HBV. Data were collected over a 3-month period. HBV vaccine status was defined as complete (3 doses), partial (1 and 2 doses) and unvaccinated. Data were entered and analysed using Epi Info 7.

Results. There were 714 respondents, of whom 186 (26%) had been vaccinated against HBV at least once. Sixty-six (9%) were partially vaccinated and 120 (17%) completely vaccinated. No student had had post-vaccination serological testing to confirm full immunisation. Of the respondents, 83% had adequate knowledge on HBV infection and vaccination, while 90% had adequate knowledge on HBV transmission. Most medical students had a positive attitude towards the HBV vaccine. The most common negative attitudes were worries about side-effects and fears of being infected by the vaccine.

Conclusions. Despite adequate knowledge on HBV infection and vaccination, only ~1 in 6 medical students had completed the HBV vaccination series. This finding highlights the need for better health policies aimed at increasing access to and coverage of HBV vaccination in at-risk populations such as medical students.

Direct-acting antiviral therapy for hepatitis C: The initial UCT/GSH Liver Clinic experience

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Background. An estimated 600 000 South Africans have chronic hepatitis C virus (HCV) infection. Accurate prevalence data are lacking, but emerging data suggest a significant burden in key populations. Historically, pegylated interferon/ribavirin treatment was challenging, with access limited. All-oral, short-course, direct-acting antiviral (DAA) therapy has revolutionised treatment.

Objectives. To report our initial 2-year experience with DAA therapy at the Liver Clinic, Groote Schuur Hospital.

Methods. Patients with confirmed HCV viraemia were offered access to DAA therapy. All relevant demographic, virological, serological and clinical laboratory data were captured. Liver fibrosis was assessed non-invasively with Fibroscan. DAA regimens were prescribed according to current guidance. On treatment, virological response was recorded and a sustained virological response (SVR) was defined as undetectable HCV RNA at least 12 weeks after the end of treatment.

Results. We report on the first 210 patients treated, median age 52 years (interquartile range (IQR) 42 - 61), 65% male, men significantly younger than women at 50 years (IQR 42 - 59) v. 58 years (IQR 47 - 67), respectively; $p=0.001$. Of the patients, 19% were HIV co-infected and 2% hepatitis B virus co-infected. Genotypes (GTs) 1 (45%) and 5 (20%) were most prevalent, with GT 2, 3 and 4 frequencies of 7%, 11% and 17%, respectively. Extensive subtype diversity for GTs 2 and 4 was present. Of the patients, 39% had advanced fibrosis or cirrhosis (11% F3 and 28%

F4 fibrosis); 12% of cirrhotics were decompensated. Most patients were treated with sofosbuvir and ledipasvir (38%), daclatasvir (36%) or velpatasvir (\pm voxilaprevir, 9%). Other treatments included paritaprevir, ritonavir, ombitasvir \pm dasbuvir (11%) and sofosbuvir/ribavirin (5%). The per-protocol SVR was 96% (97% if sofosbuvir/ribavirin is excluded). Most treatment failures occurred with GT 4, notably subtype 4r. Side-effects (10%) were mild, with no patients discontinuing treatment.

Conclusions. DAA therapy for HCV in a pan-genotypic group of patients, many with advanced liver disease, was highly effective. Our outcomes correspond with existing trial and real-world data. DAA therapy and access need rapid up-scaling in South Africa.

A decade of hepatitis C at the UCT/ GSH Liver Clinic in the pre-DAA era

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Background. Pegylated interferon (Peg-IFN) and ribavirin (RBV) was the standard of care for hepatitis C for 15 years. Local data on outcomes are poorly characterised. We describe our experience of hepatitis C and Peg-IFN/RBV treatment over more than a decade at the Groote Schuur Hospital Liver Clinic.

Methods. Chronic hepatitis C virus (HCV) patients attending the Liver Clinic between 2002 and 2014 were included in a registry with relevant clinical data captured. All HCV patients were included and Peg-IFN/RBV-treated patients, including those who received the first-generation protease inhibitor telaprevir, were analysed.

Results. A total of 238 patients (61% men) were included, median age 47 years (interquartile range (IQR) 37 - 58). Men were significantly younger than women, at 43.5 years (IQR 35 - 52) v. 55 years (IQR 42 - 64), respectively; $p < 0.0001$. Most patients were white (55.9%) or of mixed ancestry (21.8%), and 16.4% were HIV co-infected, 3.7% hepatitis B virus co-infected and 0.4% triple infected. The mode of HCV acquisition was blood/blood product exposure prior to 1992 (32.8%) and injecting drug use in 17.6%, while 30.3% had no identifiable risk factor. Genotypes (GTs) 1 to 5 were observed, with GT 1 (34.9%) predominating. In patients who were biopsied ($n=90$), 30% had \geq F3 fibrosis and 15.6% were cirrhotic. With regard to IL28B polymorphisms, heterozygous CT (24%) and CC GTs (16%) were most frequently observed. Of the patients, 33% accessed Peg-IFN/RBV-based therapy, 6.5% ($n=5$) with add-on telaprevir. GT 1 (35.1%) was most prevalent in the treatment group, with GT 3 in 26% and GT 5 in 18.2%; 10% were HIV co-infected. The overall sustained virological response (SVR) rate was 75.3%, with 37% of patients with GT 1 not achieving SVR. Adverse events were frequent, including cytopenias (32.5%) and depression (15.6%), with 23.4% requiring cell support with erythropoietin and/or granulocyte-macrophage colony-stimulating factor.

Conclusions. Peg-IFN/RBV treatment outcomes in this pan-genotypic cohort were encouraging, with patient selection, IL28B guidance and cytopenia support probably accounting for this result. However, access was limited and treatment was costly and onerous. This experience highlights the massive benefits of the evolving DAA era of therapy and the need to expand HCV therapy.

AIDS perineum

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Objectives. To study perineal manifestations of AIDS.

Methods. AIDS patients treated by the author from 2000 to 2018 were included in this retrospective cohort study. Every patient received standard treatment for AIDS.

Results. The sample comprised 61 patients (29 males and 32 females). The mean age was 30.5 years (range 22 - 44). Duration of follow-up ranged from 2 weeks to 6 years. Symptoms were proctalgia ($n=53$), soiling ($n=50$), bleeding ($n=6$) and lumps ($n=6$). Every patient had examination of the perineum under anaesthesia, with the findings of multiple fistulas ($n=35$), perianal suppurations ($n=7$), anal ulcers ($n=27$), prolapsed haemorrhoids ($n=5$) and poor anal tone ($n=49$). Four patients had local injection of steroids, 10 had fistulotomy, 50 received highly active antiviral therapy (HAART) and 48 had perineal biopsies. Thirty-eight patients died during follow-up. Six had mycobacterial infection, 1 had cytomegalovirus (CMV) infection and the others had nonspecific biopsies. Among the survivors, 15 patients reported improvement of their proctalgia (none of them received steroid injections), 12 had improvement in soiling, sepsis was cured in 17, and 8 had persistent soiling (7 had fistulotomy, 1 non-healing fistulotomy). All the patients with CMV and mycobacterial infections died.

Conclusions. Perineal manifestations reflect the stage of AIDS and urgent requirement for HAART. Associated CMV and mycobacterial infections predict poor prognosis. Only those patients who responded well to HAART had better outcomes.

Inflammatory bowel disease in Indian patients attending a regional hospital in Durban

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Background. People of Indian origin (mostly 5th/6th generation) account for 16.7% of the population of Durban, KwaZulu-Natal Province. There are no recent studies describing inflammatory bowel disease (IBD) in this group.

Objectives. To identify clinical characteristics of IBD in Indian patients.

Methods. A retrospective chart review of patients with IBD attending the Gastroenterology Clinic at R K Khan Hospital from 1999 to 2017 was done. Demographic data and clinical variables at diagnosis of Indian patients with IBD were identified and analysed using Stata version 13 (StataCorp, USA).

Results. Of 104 charts identified, 6 were excluded owing to insufficient data. The 98 charts reviewed included 78 with ulcerative colitis (UC) and 20 with Crohn's disease (CD). Median age at presentation was 39 years (interquartile range (IQR) 27 - 48) for UC and 27.5 years (IQR 21.5 - 4.5) for CD ($p < 0.01$). The male/female ratio was 1:1.6 for UC and 1:2.3 for CD. There was no significant difference in disease extent in the UC group. Of the CD group, 55% had ileocolitis (L3). More patients with CD than UC had disease-related complications (55% v. 14.8%) and extraintestinal manifestations (EIMs) (45% v. 20.5%), and required surgery (65% v. 5.1%). All of these were significant ($p < 0.05$).

Conclusions. Patients with CD have an early age of presentation, similar to reports from India and the western diaspora. This study revealed a female predominance. Higher proportions of EIMs, disease complications and surgical rates in CD are similarly reported in white and Indian patients in Johannesburg. The proportion of complicated CD is similar to that in coloured patients in Cape

Town. Compared with the present study, IBD in India has a male predominance and lower surgical rates. Similarities in IBD phenotype between this group, other South African population groups and the western Indian diaspora suggest a common environmental trigger.

Screening colonoscopy: Key performance indicators from a single-centre, open-access colonoscopy service at Vincent Pallotti Hospital

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Background. Bowel cancer screening reduces mortality. The optimal timing, frequency and modality for bowel cancer screening is debatable. In the private sector, colonoscopy is the preferred modality. To perform screening colonoscopy safely and effectively, the quality of the colonoscopy must be ensured. Key performance indicators (KPIs) are used to assess the efficacy and safety of colonoscopy.

Objectives. In South Africa (SA), colonoscopy is performed by both physicians and surgeons, many of whom have not been trained in colonoscopy and may not achieve the benchmark quality indicators. The quality of colonoscopy in SA is believed to be highly variable. In this study, KPIs from a single private practice, offering open-access screening colonoscopy, are presented.

Methods. A retrospective audit of colonoscopy records from January 2012 to April 2019 was undertaken. All asymptomatic individuals undergoing their first screening colonoscopy were eligible for study entry. Patient demographics and a family history of colon cancer were recorded. KPIs, specifically bowel preparation, caecal intubation rate (CIR), colon withdrawal time for normal colonoscopies, adenoma detection rate (ADR) and complication rates (cardiorespiratory, perforation, bleeding and death), were determined.

Results. We analysed 277 procedures. Of the patients, 168 were male (61%). The mean age of the cohort was 56 years, and 45 patients (16%) had a first-degree relative with colorectal cancer. Bowel preparation was excellent or adequate in 261 cases (94%) and poor in 16 (6%). The CIR was 97%, mean withdrawal time was 9 minutes (range 5 - 19), and the ADR was 25% in men and 23% in women. No cancers were identified in this cohort. There were no major complications.

Conclusions. This SA study on screening colonoscopy KPIs compares favourably with international quality benchmarks. The ADR is consistent with international screening studies. The study demonstrates that safe and effective screening colonoscopy can be performed.

The prevalence and characteristics of colorectal polyps in patients undergoing colonoscopy at Groote Schuur Hospital

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Background. Data on the frequency of precancerous adenomas in sub-Saharan Africa are lacking. Knowledge of these frequencies could guide diagnostic and preventive strategies.

Objectives. To document adenoma frequency in a cohort of patients undergoing colonoscopy for bowel symptoms without specific risk factors for developing colorectal cancer.

Methods. Colonoscopy records from the prospective endoscopy database at Groote Schuur Hospital from August 2014 and February 2017 were retrieved for analysis of ethnicity, symptoms, and polyp morphology, size and number. Data on polyp histology from National Health Laboratory Service records were merged with the clinical database for analysis. The primary endpoint was the adenoma detection rate (ADR).

Results. Of 1 334 colonoscopies, 342 were excluded owing to increased risk of premalignant lesions. Of the remaining 992 colonoscopies, 820 (82.6%) detected no polyps. The mean age (standard deviation) was 61.5 (12.9) years in the polyps group and 56.3 (17.4) years in the no-polyps group ($p < 0.002$), and the majority (62%) were female in both groups. The variation in ethnicity for patients with and without polyps was as follows: mixed race 79% and 76%, respectively, white 14% and 11%, respectively, black African 5% and 12%, respectively, and Asian 2% and 1%, respectively, and was not statistically significant. Of 246 polyps detected in 172 patients who had one or more polyps submitted for histological examination, 42% were < 5 mm and 72% were sessile; 119 patients had adenomas, 26 had hyperplastic polyps and 27 were histologically normal. The most advanced histology per patient was as follows: tubular low-grade dysplasia ($n=96$), tubular high-grade dysplasia ($n=1$), tubulovillous low-grade dysplasia ($n=15$), tubulovillous high-grade dysplasia ($n=3$) and serrated ($n=4$). The ADR in our cohort was 14%.

Conclusions. The 'adenoma' detection rate acts a benchmark for our catchment population and further studies in Africa. The majority of the adenomas in symptomatic normal-risk patients were tubular low-grade dysplasia. Individuals with polyps were on average 5 years older than those who did not have polyps. There is a trend to fewer adenomas being detected in black Africans.

A case series of hepatic tuberculosis

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Tuberculosis continues to be a dreadful disease with a persistently high incidence, despite intensive efforts to hasten diagnosis and improve efficacy of therapy. Hepatic tuberculosis has notoriously been associated with high mortality. The difficulties and challenges in establishing the diagnosis make this disease a formidable foe for the treating clinician.

There is a paucity of studies and series evaluating hepatic tuberculosis, with none describing confirmed disease in HIV-infected patients who are antituberculosis therapy naive. A retrospective series of hepatic tuberculosis in HIV-infected patients naive to antituberculosis therapy will be described, focusing on clinical presentation, biochemical profiling and histological depiction, with the objective of helping to enable clinicians to identify these cases without much difficulty.

A rare cause of refractory hypocalcaemia: A case report

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Background. The classic clinical features of hypocalcaemia are familiar to physicians. Gastrointestinal causes remain under-appreciated. In this case report, we highlight an unusual cause of severe refractory hypocalcaemia that was not immediately recognised.

Case report. A 40-year-old woman referred to an endocrinologist for refractory hypocalcaemia reported a 5-month history of fatigue, weight loss and episodic vomiting. During this period, she had had numerous admissions to her local hospital, requiring treatment with intravenous rehydration and calcium supplementation. Her body mass index was 16.1 kg/m² and examination revealed classic signs of hypocalcaemia (Trousseau's and Chvostek's signs). There was visible upper abdominal distension and epigastric peristalsis but no succussion splash. Laboratory investigations confirmed hypocalcaemia, hypomagnesaemia, hypophosphataemia and a hypokalaemic hypochloaemic metabolic alkalosis. An abdominal radiograph showed a massively dilated stomach. A contrast study revealed no transit of contrast beyond the second part of the duodenum. Upper gastrointestinal endoscopy revealed copious amounts of retained gastric food debris and an impassable stricture between the second and third parts of the duodenum. A computed tomography scan of the abdomen showed no mass lesion or lymphadenopathy adjacent to or involving the duodenum. Because the patient was at high risk for refeeding syndrome, management included intravenous fluid and electrolyte replacement along with carefully monitored parenteral nutrition. Exploratory laparotomy revealed a duodenal stricture secondary to extrinsic lymph node compression. Pathology confirmed a low-grade B-cell lymphoma.

Discussion and conclusions. Malnutrition and vomiting due to prolonged untreated proximal bowel obstruction can cause severe metabolic disturbances. Use of high-volume intravenous fluids deficient in essential electrolytes and failure to consider the refeeding syndrome can exacerbate these disturbances. To the best of our knowledge, this is the first reported case of small-bowel obstruction with severe refractory hypocalcaemia as the initial presentation. This case also highlights an uncommon cause of bowel obstruction.

Disparity in oesophageal cancer management in South Africa: A comparison between two tertiary centres with a special focus on the palliation of dysphagia

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Background. For most patients with oesophageal cancer worldwide, palliation of dysphagia is the goal that is most commonly achieved with self-expanding metal stents.

Objective. To assess the profile and management of oesophageal cancer patients at Frere Hospital in Eastern Cape Province, and compare this with a similar cohort from Groote Schuur Hospital (GSH) in Western Cape Province.

Methods. The study was a retrospective comparative cohort reviewing all patients diagnosed with oesophageal cancer by the Frere Hospital and GSH endoscopy units from January to December 2015.

Results. During the study period, 346 and 108 patients were diagnosed with oesophageal cancer at Frere Hospital and GSH, respectively. The rate of curative intended intervention was similarly low, with 3% of patients at Frere Hospital undergoing oesophagectomy or definitive radiotherapy compared with 5% at GSH ($p=0.48$). In terms of palliation, significantly more patients received palliative oncological therapy at GSH compared with Frere Hospital (21% v. 8%; $p<0.001$). At Frere Hospital, 281 patients (81%) were treated primarily with

serial dilatations. At GSH, 9 patients received a single dilatation, all as a bridge to radiotherapy or stenting. At Frere Hospital, 28 patients (8%) were stented, compared with 69 patients (64%) managed with a stent at GSH ($p<0.001$).

Conclusions. This study shows significant differences in the oncological and endoscopic palliation of patients between the two institutions, highlighting gross disparity in healthcare provision between them. The reasons for these disparities should be investigated and equipoise addressed by national health policymakers.

Western Cape *Helicobacter pylori* Gastritis Characterisation Study (WCHPCS)

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Background. Progression to gastric cancer has been well studied in high-income countries and is a dynamic interplay between *Helicobacter pylori* virulence factors and the host's inflammatory response.

Objectives. To characterise these factors in a Western Cape cohort of patients with *H. pylori* gastritis for the first time in South Africa (SA).

Methods. A prospective cohort of patients with dyspepsia secondary to *H. pylori* gastritis as confirmed by a biopsy urease test are being enrolled to a target of 100. Gastric biopsy specimens are obtained from those with a positive urease test and assayed for *H. pylori* virulence factors, namely cytotoxin-associated antigen (CagA) protein and vacuolating toxin-A (VacA) and the pro-inflammatory interleukin-1 gene cluster polymorphism (IL-1B 511) of the host.

Results. Fifty-six dyspeptic patients have been enrolled, of whom 25 ($n=20$ female) were confirmed to be *H. pylori* polymerase chain reaction-positive. Twenty-two patients were positive for high-risk IL-1B 511 pro-inflammatory genomics. Thirteen bacteria did not carry CagA or VacA virulence factors. Eight were positive for both virulence factors and 4 were only VacA-positive.

Conclusions. This preliminary analysis demonstrates a high-risk pro-inflammatory genotype in 88% of patients and low *H. pylori* virulence in 52% of bacteria. Further recruitment and correlating these factors with gastric histology should provide evidence pertinent to the pathway to gastric cancer in an SA population.

The incidence of malignancy in a South African inflammatory bowel disease cohort

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Background. The global incidence of cancer is escalating. There is increasing focus on cancer awareness in inflammatory bowel disease (IBD) patients with increasing age; also, patients with a history of cancer develop IBD, and treatments for IBD are associated with certain cancers. The latter brings into question the long-term safety of thiopurines, while evidence of the superior safety of anti-tumour

necrosis factors and newer biologicals is emerging. South Africa is a resource-poor country with relatively poor access to biologicals, so thiopurines remain the standard of care.

Objectives. To present the incidence of cancer in a large IBD cohort, and predictors for malignancy.

Methods. A retrospective comparative analysis of the IBD Africa Registry from Groote Schuur Hospital and surrounding private practices between 1970 and 2019.

Results. A total of 2 539 patients were reviewed, of whom 972 (38.3%) had immunomodulatory therapy and 121 (4.8%) had a malignancy, diagnosed after IBD in 70 cases. In this group, non-melanoma skin cancer ($n=12$, 17%), breast cancer ($n=12$, 17%), colorectal cancer ($n=11$, 15%) and melanoma ($n=7$, 10%) accounted for almost 60% of all cancers. An association was found between malignancy and facility (public v. private) ($p=0.000$), disease extent ($p=0.013$), smoking ($p=0.013$), peri-anal Crohn's disease ($p=0.000$), surgery ($p=0.001$) and immunosuppression ($p=0.001$) on bivariate analysis; however, in a multivariate logistic regression model, only facility ($p=0.030$) and surgery ($p=0.005$) retained significance.

Conclusions. We have identified that IBD patients with specific phenotypes, who smoke, who have had surgery (possibly indicative of more severe disease) and who have been exposed to immunosuppressives are at increased risk of cancer. The majority of the cancers described can be detected early with the appropriate screening tests. Cancer prevention strategies as described by the ECCO Consensus IBD and Malignancies Guideline need to be adopted, and particular vigilance is required in view of the large number of patients in our setting who rely on thiopurine therapy for IBD.

Small-bowel capsule endoscopy: Experiences from the Western Cape, South Africa

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Background. Despite many reports from high-income countries (HICs) on the yield of small-bowel capsule endoscopy (SBCE), there are none from South Africa.

Objectives. To address this deficit by conducting a retrospective review of SBCEs performed for obscure gastrointestinal bleeding in the public and private sectors of Cape Town Metro West.

Methods. Records of patients who underwent SBCE at Groote Schuur Hospital (GSH) (public) and Milnerton Mediclinic (MMC) (private) from January 2011 to December 2018 were reviewed. Demographic and clinical data as well as procedure indications and findings were collected for a comparative analysis between the two centres.

Results. A total of 449 SBCE reports were collated (310 from MMC and 139 from GSH). In the combined data, the male/female ratio was equal (1:1.05) and the median age of patients was 64 years (interquartile range 50 - 71). These demographics did not differ by centre. Sixty-six percent and 34% were evaluated for occult bleeding and overt bleeding, respectively (melaena (53%), haematochezia (28%) and haematemesis (7.6%)). Presentation with overt bleeding more common at GSH (39%) than at MMC (29%) ($p=0.0425$). The overall yield from capsule endoscopy was 54.1%, and this did not differ by centre (54.7% for GSH and 53.5% for MMC) or by mode of presentation ($p=0.224$ for overt v. occult bleeding). Angioectasia

was the commonest abnormality (43.2%). Abnormal findings were positively correlated with increasing age ($p<0.0001$) and use of anticoagulants or antiplatelets ($p=0.002$), but not with baseline haemoglobin ($p=0.862$).

Conclusions. Variation in the proportion of overt and occult presentations between the public and private sectors did not affect the yield of SBCE, which was high and comparable to reports from HICs. Older age and use of anticoagulants or antiplatelets increased the SBCE yield.

The utility of APRI and FIB-4 scores in detecting liver fibrosis in hepatitis C patients at Chris Hani Baragwanath Academic Hospital, South Africa

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Background. Hepatitis C is a viral infection that leads to chronic liver disease.

Objectives. To assess the utility of the aspartate transaminase-to-platelet ratio index (APRI) and fibrosis index based on four factors (FIB4) for the prediction of liver fibrosis in hepatitis C patients.

Methods. We retrospectively reviewed 87 records of patients who presented to the liver clinic in the Division of Gastroenterology, Chris Hani Baragwanath Academic Hospital, from January 2007 to December 2016. Patients' records were reviewed and analysed. Convenience sampling was used.

Results. Of the 87 patients, 59 had liver biopsy results. Eighteen patients (30.5%) had a Metavir score of F0, 15 a score of F1, 9 a score of F2, 7 a score of F3 and 10 (16.9%) a score of F4. The patients' mean (standard deviation) age was 52.6 (12.3) years, and 54% were female. The receiver operating characteristic curve for Metavir F0 and APRI (cut-off <0.7) showed a moderate correlation, with an area under the curve (AUC) of 0.349 ($p=0.002$), sensitivity of 78.8%, specificity of 70.6% and a negative predictive value (NPV) of 63.2%. Metavir F4 v. APRI (cut-off ≥ 1.5) showed an AUC of 0.881 ($p=0.001$), with sensitivity of 85.7%, specificity of 93% and a positive predictive value (PPV) of 67%. Metavir F0 v. FIB 4 (cut-off <1.45) showed moderate correlation, with an AUC of 0.332 ($p=0.021$), sensitivity of 78.3%, specificity of 53.8% and an NPV of 73.7%. Metavir F4 v. FIB 4 (cut-off >3.25) had a strong correlation, with an AUC of 0.952 ($p<0.001$), sensitivity of 63.6%, specificity of 100% and a PPV of 100%.

Conclusions. APRI and FIB4 scores can be used to predict advanced fibrosis in hepatitis C patients, alleviating the need for staging liver biopsy. Both scores have moderate to strong correlation with Metavir F0 and F4.

Adenoma detection rate and characteristics in asymptomatic patients undergoing surveillance colonoscopy at a tertiary centre

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Background. Surveillance colonoscopy in high-risk groups is effective in reducing mortality from colorectal cancer (CRC).

Objectives. To: (i) document adenoma frequency; (ii) evaluate surveillance practices; and (iii) compare adenoma characteristics in a high-risk group of patients undergoing surveillance colonoscopy.

Methods. Colonoscopy records from the prospective endoscopy database at Groote Schuur Hospital from August 2014 and February 2017 were retrieved for analysis of demographic and clinical data including the indication for colonoscopy, detection of polyps and quality of bowel preparation.

Results. Of 707 surveillance colonoscopies in asymptomatic individuals, 134 (18.9%) were for hereditary non-polyposis colorectal cancer (HNPCC), 195 (27.5%) were in irritable bowel disease (IBD) patients, 263 (37.1%) were for surveillance after CRC resection, and 175 (24.7%) were for post-polypectomy surveillance. Overall bowel preparation was adequate, good, poor but with continuation of the procedure, and poor resulting in abandonment of the procedure in 39%, 37%, 21% and 1% of cases, respectively. The caecal intubation rate (CIR) was 85.8%; in two-thirds of these cases, this included terminal ileal intubation. Colonoscopy was described as difficult in 19% of procedures. The adenoma detection rate (ADR) in our cohort was 17.5%. Patients undergoing surveillance for HNPCC were 1.8 times (95% confidence interval (CI) 1.0 - 3.5; $p=0.0457$) and 4.5 times (95% CI 1.3 - 15.9; $p=0.014$) more likely to have sessile and stalked polyps, respectively, compared with surveillance in IBD patients.

Conclusions. Colonoscopic surveillance practices in our unit fail to meet international standards in terms of CIR, bowel preparation and ADR. Detection of polyps was higher in HNPCC compared with IBD, the former being the highest-risk group in our population. The findings highlight the need for continued monitoring and improvement of standards, to improve surveillance in high-risk groups.

Utility of endoscopic duodenal biopsies in patients investigated for malabsorption: A South African National Health Laboratory Service database study

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Background. Endoscopic duodenal biopsy (EDB) remains a valuable diagnostic tool in patients presenting with malabsorption.

Objectives. To determine the yield of EDB and document the spectrum of conditions in those investigated for malabsorptive features in South Africa between 2004 and 2016.

Methods. Histology data of patients who had EDB for malabsorption or suspicion of coeliac disease (CD) captured at the National Health Laboratory Service were analysed. The database was extracted for indications, diagnoses and comorbidities. EDB indications included chronic diarrhoea, iron deficiency anaemia, suspected CD, weight loss, vitamin deficiencies and failure to thrive. Excluded records were for malignancies, inflammatory bowel disease, peptic ulcer disease, prior surgery, absence of malabsorption features and low suspicion for CD.

Results. Over 12 years, 3 253 patients (2 082 female, 1 171 male; mean age 43.5 years (standard deviation (SD) 19.3) had EDB for malabsorption. Indications were chronic diarrhoea (46%), iron deficiency anaemia (22%), unexplained weight loss (7%), and vitamin B₁₂ and folate deficiencies (5% and 1%, respectively). In the remaining 19%, the reason for suspecting CD was not explicitly stated. Of the biopsies, 82% were non-diagnostic: normal 55%, nonspecific duodenitis 17%, and isolated epithelial lymphocytosis 10%. Infectious causes were identified in 9% (296/3 253) of the cohort. Infections identified included cryptosporidium in 92 (2.8%), isospora in 59 (1.8%), cytomegalovirus in 40 (1.2%), tuberculosis in 32 (1.0%), other mycobacteria in 29 (0.9%), giardia in 25 (0.8%) and others in 59 (1.8%). More than one infection was identified in some patients. HIV was documented in 185 (5.6%), while 10 (0.3%) patients had organ transplantation and 2 (0.06%) were on immunosuppressives for autoimmune conditions. Of the patients 113 (3.5%) had CD, 68% of whom were females with a mean age of 36.3 years (SD 21.4); 10% of these patients had associated insulin-dependent diabetes mellitus.

Conclusions. Opportunistic infections were the predominant cause of malabsorption in this cohort, and CD was also a significant cause.