Clinical Practice

"Who should insert esophageal stents?"—experience in a regional centre

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Introduction and aim Esophageal stents are placed endoscopically, commonly to treat malignant strictures. The majority of data in this area comes from large tertiary centers. We present a restrospective audit of 43 cases performed in the Ballarat Base Hospital over a 10 year period.

Method A retrospective audit was performed over the period March 1999–March 2009. The 'IBA -PAS' database was interrogated using the search terms 'stent', 'esophagus' and 'gastroscopy'. The Case notes of 43 patients were retrieved and examined. Data was entered into a spreadsheet and included the patient gender and age, date and indication for the procedure, stent type, surgeon and length of hospital stay. 30, 90 day and total survival post stent insertion were noted with data obtained from the case notes, electronic data base and, where necessary the Victorian Register of Births, Deaths and Marriages. Complications of the procedure were defined as; death within 30 days, haematemesis, stent migration, pneumonia, perforation and dysphagia requiring repeat procedure. Due to the limited patient numbers and restricted endpoints sophisticated statistical methods were not used to interpret the data.

Results The average age of patients was 73 years (range 51–93 years), with an equal gender distribution (21 male and 22 female)

The majority of procedures were performed for malignant strictures (32 for adenocarcinoma of the esophagus, 9 for squamous cell carcinoma). All stents were expandable covered metal stents Six different proceduralists performed the operation, the majority (28) being performed by two proceduralists (14 each). 7 patients died within 30 days (15%) and 9 had died within 90 days (23%) of the procedure, whilst mean survival was 135 days. The most common complication was stent migration (5 patients) followed by dysphagia requiring repeat procedure (3 patients) and haematemesis (1 patient) or pneumonia within 1 week (1 patient) of insertion. The average length of stay was 48 hours.

Summary/conclusions All major indicators (including 30, 90 day and median survival as well as complication rates) were comparable to, and not inferior to previous case series. This audit would thereby support the assertion that esophageal stents can be safely placed by proceduralists operating in a large regional centre.

A colonoscopy competency framework derived from task analysis

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Colonoscopy is a complex perceptual-motor skill. To improve training it is necessary to understand the skills and competencies required to successfully carry out the task.

A task analysis was undertaken as an initial step towards the development of a colonoscopy training program. Ten experienced colonoscopists were videotaped carrying out live procedures. Image was also recorded from the scope camera and a magnetic endoscope imaging system (Olympus Scope-guide). While carrying out the procedure the colonoscopists used a "think-aloud" technique to describe their aims/goals and expectations/predictions that govern their performance during both insertion and withdrawal; they were asked to describe their strategies, scope handling techniques and scope loop awareness, cues they use for navigation and the detection of abnormalities, and any other cognitive processes that they are aware of while carrying out the task. A post-procedure interview was carried out in which the colonoscopist reviewed the video taped procedure with the experimenter, and the colonoscopist was encouraged to provide further information and answered probe questions. The video analysis tool, Transana, was used in the subsequent analysis.

The information derived from the qualitative analysis was used to describe a Colonoscopy Competencies (technical skills) framework. During insertion, three categories of competencies were identified: scope control (which involved tip and torque control using visual and haptic cues, and explicit knowledge); situation awareness (which involved a complex mix of cues and explicit knowledge); and situation specific heuristics (a range of strategies specific to location and situations). During withdrawal, the same scope control, situation awareness and situation specific heuristic competences were evident, as well as detection and diagnosis competencies (e.g. recognition of abnormality), and competencies specific to treatment. The skills categorised under these higher level competencies are interconnected and interdependent.

The proposed Colonoscopy Competency framework provides a useful model for identifying opportunities for targeting training, and a means of ensuring that training is comprehensive.

A phase 2A randomized double blinded placebo controlled study evaluating immunity and gluten sensitivity by inoculating coeliac disease patients with the human hookworm necator americanus

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Introduction The disappearance of helminths from human populations may be responsible for the upsurge in autoimmune diseases. We undertook a randomized, double-blinded placebo controlled trial examining infection with Necator Americanus (NA) or placebo in healthy subjects with celiac disease (CD) studying safety, tolerability and response to gluten challenge.

Methods 20 HLA-DQ2 positive participants with histologically confirmed celiac disease in remission (confirmed by a normal TTG), were recruited. Ten were inoculated with 10 infective NA larvae (iL3) to the skin at week 0, and a further 5 iL3 at week 12. Ten controls underwent a sham-inoculation. A 5 day oral (200 g per day), and 4 hour rectal (6 g) gluten challenge was undertaken at week 20. Symptom, clinical and blood measurements were obtained at weeks 0, 4, 12, 20 & 21. Targeted biopsies were taken at weeks 20 and 21.

Results 100% completed the trial including full GC. NA infection was well tolerated with no adverse outcomes reported. There was a significant deterioration in symptoms scores and overall well-being in the placebo group. The intraepithelial lymphocyte count increased in both groups,

significantly so in the placebo group ($p < 0.05$). The Marsh scores deteriorated in 90% of the placebo group ($p < 0.05$) though not in the NA group.

Conclusion NA infection was safely and successfully tolerated without any sustained ill effect. The histological changes are consistent with an immunomodulatory effect from NA. The deterioration in Marsh scores over 5 days heralds a new approach to a GC in patients without a confirmed diagnosis of coeliac disease already on a gluten free diet.

A retrospecitve audit of surveillance practices for Barrett's oesophagus at a tertiary referral centre

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Introduction The "Seattle protocol" has been shown to improve outcomes for patients undergoing surveillance for Barrett's oesophagus (BO). This study was undertaken to determine whether the biopsy strategy and frequency of endoscopic surveillance for BO at a tertiary referral centre follow the current guidelines proposed by the American College of Gastroenterology (ACG) (Seattle protocol).

Methods All patients with a histologically proven BO referred for surveillance at The Canberra Hospital and entered onto the Endoscribe computer database over a 7-year period were reviewed. The endoscopic length of BO was used to calculate the expected number of biopsy intervals and biopsy number as set out by the ACG guidelines (4 quadrant biopsies every 2 cm). Comparisons were made with the number of biopsy specimens received by the histopathology department. Surveillance intervals based on the presence of dysplasia as proposed by the ACG were compared to the frequency of actual surveillance based on Endoscribe records.

Results There was a total of 279 surveillance endoscopies performed on 151 patients (105 male; mean age 61) by 21 separate endoscopists. 270 endoscopies were analysed. Long segment BO was reported on 163 (78%) endoscopies, the average length was 4.5 cm. Only 84 (31%) endoscopies had biopsy specimens labelled with the precise centimetre location in the Barrett's segment. There was no significant difference between the expected minus actual number of biopsy locations based on the length of BO but on average 3 less biopsies were taken per endoscopy than expected. The 144 patients with no dysplasia should have had a surveillance interval of 3 years however the actual interval was only 21 months. Of 9 patients with low-grade dysplasia (LGD), 2 had no follow-up over 2 years and 1 patient no follow-up in 6 years. The remainder ($n = 6$) had more than one surveillance endoscopy but whilst the proposed time interval was 6 months, the actual elapsed time was 11 months and subsequent endoscopies were done at a mean of 15 months. One patient with both high-grade dysplasia and adenocarcinoma on entry had appropriate biopsies and follow-up.

Conclusions Despite no formal departmental protocol, biopsy numbers conformed to the ACG guidelines. However follow up was too frequent for those without dysplasia and insufficient for those with LGD. A formal recall protocol would be more cost effective and provide appropriate surveillance for those patients with dysplasia.

Association of alcohol use and gastrointestinal symptoms

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Introduction Excessive alcohol consumption has been associated with a number of gastrointestinal disorders. However it is not clear to what extent alcohol might contribute to the symptoms of patients presenting for all causes to a community-based gastroenterological practice. This study aimed to test the association between excess alcohol consumption and different gastrointestinal symptoms.

Methods The gastrointestinal symptoms of 50 consequetive patients with excessive alcohol intake were compared to those of contemporaneous non drinking patients presenting to a community–based consultant gastroenterological practice. Excessive alcohol consumption was defined as >28 standard drinks per week for males and >14 standard drinks per week for females. Each patient's symptoms were prospectively documented using a standardised proforma. Chi square analysis was used to compare proportions with a p value of <0.05 considered significant.

Results The mean age of each group was similar. 53 years for drinkers an 58 for non drinkers (t test $p = 0.08$). Drinkers were more likely report diarrhoea ($p = 0.002$), nausea ($p = 0.01$) indigestion ($p = 0.04$) heart burn ($p = 0.004$), early satiety ($p = 0.01$) and weight gain ($p = 0.049$). There was no significant difference between the groups in respect of dysphagia, vomiting, abdominal pain, bloating, constipation, rectal bleeding or weight loss.

Conclusions Although cause effect is not established by this study, these data show that excessive alcohol consumption is associated with multiple significant symptoms in patients presenting with gastrointestinal problems. Further study is required to determine the clinical significance of these findings. If confirmed, the recognition of alcohol as causative would be necessary to allow appropriate therapy and avoid inappropriate investigations.

Azathioprine, 6-mercaptopurine and thiopurine s-methyltransferase levels in gastroenterology and rheumatology: a comparison of clinical practice in Australia

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Introduction Azathioprine (AZA) and 6-mercaptopurine (6-MP), have been widely used by Gastroenterologists and Rheumatologists. This study compares the prescribing and monitoring of AZA and 6-MP among Australian Gastroenterologists and Rheumatologists.

Methods Questionnaires were distributed to 647 Gastroenterologists and 273 Rheumatologists across Australia. The questionnaire included questions regarding AZA/6-MP dosing, full blood count (FBC) monitoring, TPMT testing and metabolite monitoring. Statistical methods used were descriptive methods, Chi square and Fisher's exact test.

Results 301 Gastroenterologists and 161 Rheumatologists responded. (response rate 50%). All used AZA, while only 12.4% of Rheumatologists compared with 86.0% of Gastroenterologists prescribed 6-MP ($P < 0.001$). A greater proportion of Rheumatologists than Gastroenterologists use a dose escalation regime to initiate AZA (91.3% vs. 79.1%, $P < 0.001$), while a similar proportion use dose escalation with 6-MP (85.0% vs. 78.4%, P = NS). TPMT testing was used equally by both groups (45%). In response to low TPMT activity, 38.1% of Gastroenterologists who test TPMT will not prescribe thiopurines compared with 61.6% of Rheumatologists ($P = 0.001$), while 59.7% of Gastroenterologists and 34.2% of Rheumatologists will prescribe a reduced dose ($P < 0.001$). With intermediate activity, 68.7% of Gastroenterologists and 76.7% of Rheumatologists will prescribe a reduced thiopurine dose (P = NS), while 28.4% of Gastroenterologists and 9.6% of Rheumatologists will not change their normal prescribing practices ($P = 0.002$). 28.5% of Gastroenterologists compared with 3.7% of Rheumatologists order metabolite monitoring ($P < 0.001$). These results did not alter pattern of FBC monitoring. Limited availability, lack of understanding of the tests and belief that the results would not

change management decisions were the primary reasons for not ordering TPMT and metabolite testing.

Conclusions Patterns of prescribing and monitoring thiopurines by both Gastroenterologists and Rheumatologists in Australia are varied and standards of care are diverse. Implementation of more prescriptive clinical practice guidelines, education and improved availability of TPMT testing and metabolite monitoring are therefore likely to have beneficial impacts.

Benefit of epoetin alfa in the treatment of hepatitis C in a provincial centre

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Introduction Symptomatic anaemia due to marrow suppression is a known side effect of hepatitis C treatment with interferon and ribavirin and may necessitate dose reduction or even treatment cessation. Erythropoietin support may allow more patients to complete treatment successfully.

Methods 13 patients requiring epoetin alfa (EA) support for symptomatic anaemia whilst undergoing pegylated-interferon and ribavirin therapy for hepatitis C at Cairns Base Hospital between 2005 and present day were reviewed retrospectively. The haemoglobin response, resolution of symptoms, ability to complete therapy and frequency of sustained viral response (SVR) were evaluated.

Results Six men and seven women, aged 43–70 yrs, received EA whilst undergoing hepatitis C treatment. Six patients had genotype 1 and seven non-1 (two type 2 and five type 3). Three had cirrhosis. The median haemoglobin prior to starting treatment was 141 g/l (range 111–170). Median haemoglobin prior to starting EA was 96 g/l (86–117), a mean absolute decrease of 42 g/l (15–76). Symptoms were present in all but one case. EA was started at a dose of 12,000–20,000 units weekly and was increased to 40,000 weekly in one patient. The frequency of follow-up required was not increased in those receiving EA. Only one experienced a possible side effect (hypertension, which was easily controlled).

The mean absolute increase in haemoglobin was 36 g/l (14–45). The haemoglobin of two patients failed to respond to EA, one due to the development of interferon-induced bone marrow hypoplasia. This was also the only patient in whom symptoms did not resolve.

Seven, all of whom would otherwise have had to cease or severely curtail treatment, had SVR (three were genotype 1). Three remain on treatment, one of whom is the other patient whose haemoglobin did not increase. Two of the original 13 patients ceased treatment due to failed suppression of viral load at 3 months. One patient died of liver failure 8.5 months into treatment. (He was taking EA at the time of death).

Conclusions EA allowed allows safe completion of hepatitis C treatment in those with symptomatic anaemia secondary to pegylated-interferon and ribavirin, with resolution of symptoms and no adverse effect on SVR. The resultant safer haemoglobin levels allow some follow-up in primary care, decreasing the burden to hepatology outpatient clinics and the need for travel to hospital for the patient, both of which are important in a regional centre.

Characteristics of patients with idiopathic acute pancreatitis at a tertiary referral hospital

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The underlying aetiology responsible can be identified in over 75% of cases of acute pancreatitis. We sought to establish the characteristics of cases classified as unspecified acute pancreatitis at Fremantle Hospital.

Methods Records of patients hospitalised at Fremantle Hospital with acute pancreatitis between 1 January and 31 December 2007 were reviewed. Patients were identified from the clinical coding database and review of clinical, laboratory, radiology and endoscopy records was conducted.

Results 158 patients were identified with acute pancreatitis. 71 (45%) [40 males (56%) and 31 females (44%) had unspecified aetiology. Table 1 summarises patient characteristics and investigations. The prevalence of idiopathic acute pancreatitis was 34/158 (21.5%) after a cause was found in 37 more patients. 21 (30%) had recurrent acute pancreatitis (Table 2).

Table 1 LOS is length of stay and SEM is standard error of mean.

	Unspecified (n = 71)	Other Causes (n = 87)	P value
Age Mean (SEM)	57 (3.1) yrs	52 (2.7) years	0.3
Recurrent pancreatitis [n (%)]	11 (32)	10 (27)	0.6
LOS (days). Median (range)	7 (1.8)	6 (0.8)	0.8
In-patient mortality [n (%)]	0 (0)	1 (2.7)	0.3
3-month mortality [n (%)]	0 (0)	1 (2.7)	0.3
Lipase U/L Mean (SEM)	1,970 (476)	2,369 (481)	0.3
Lipase V1 U/L Mean (SEM)	16,194 (5028)	11,190 (3,313)	0.9
Triglycerides mmol/L (SEM)	1.6 (0.2)	2.0 (0.41)	0.9
Calcium mmol/L (SEM)	2.3 (0.02)	2.4 (0.04)	0.5
IgG4 [n (%)]	4 (12)	3 (8)	0.6
Ultrasound exam [n (%)]	27 (79)	28 (76)	0.7
CT abdomen [n (%)]	19 (56)	18 (49)	0.5
MRI/MRCP [n (%)]	19 (56)	19 (51)	0.7
ERCP [n (%)]	4 (12)	6 (16)	0.6
EUS [n (%)]	5 (15)	5 (14)	0.9
Genetic/viral studies [n (%)]	0 (0)	0 (0)	NA
HDU/ICU admission	3 (9)	3 (8)	0.9

Table 2

	Aetiology				
	Alcohol	Gallstones	Idiopathic	Other	
Recurrent Pancreatitis	7 (33%)	0 (0%)	**11 (53%)**	3 (14%)	χ^2 $p < 0.05$

Conclusions The prevalence of true idiopathic acute pancreatitis was 21.5%. Detailed biochemical, immunological, MRI and EUS examination were underutilised and could potentially increase the diagnostic yield in this population that is at risk of recurrent acute pancreatitis.

Chemotherapy-induced diarrhoea is associated with a modified microbiome in cancer patients

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Diarrhoea is a major clinical manifestation of alimentary mucositis. The underlying pathology of oral and small intestinal mucositis has been well studied, although the mechanisms contributing to chemotherapy-induced diarrhoea (CID) remain poorly understood. The primary aim of this study was to obtain preliminary data to determine if changes in microflora observed in previous animal models of chemotherapy-induced mucositis and diarrhoea compare with clinical data, and to determine if the faecal flora of patients with CID was displaced from that of healthy controls.

Sixteen patients (6 males, 10 females) with a median age of 71 years (range 36–82 years) receiving chemotherapy provided informed consent to participate in this study. This was a non-invasive study, with patients requested to provide stool samples and blood samples, taken after the onset of CID. Complete blood examination (CBE) and biochemical analyses were performed on blood samples and compared with internal normal reference ranges. Stool samples were analysed using conventional culture techniques and quantitative real-time PCR.

The overall culture analysis revealed that 75% of patients had a decreased anaerobic component of their microflora, with respect to both the level of growth and diversity of species present. The majority of patients experiencing CID also showed decreases in *Clostridium spp*., *Lactobacillus spp.*, *Bifidobacterium spp*., *Bacteroides spp*., and *Enterococcus spp*. Increases were also observed in *E. coli* and *Staphylococcus spp*. Antibiotics did not have any noticeable effect.

In conclusion, CID is associated with marked changes in the intestinal microflora. These changes may result in diminished bacterial functions within the gut, altering gut function and initiating intestinal damage, resulting in the onset of diarrhoea.

Colonoscopic findings in patients with bowel wall thickening on abdominal CT

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Background Bowel wall thickening is an occasional chance finding on abdominal computed tomography (CT). The relationship between the incidental finding of bowel wall thickening on CT and subsequent findings on colonoscopy is unclear. We determined the correlation of bowel wall thickening on CT with subsequent colonoscopy findings.

Methods We reviewed patients who underwent colonoscopy for investigation of bowel wall thickening at the Canberra Hospital from July 2001 to March 2009. Patients were excluded if they had known history of inflammatory bowel disease or gastrointestinal malignancy.

Results Of the 112 patients identified using our search strategy, 74 had colonoscopy specifically for the finding of bowel wall thickening on CT and were included in the final analysis. Of these 33 were female with a mean age of 57 years for females and 56 for males. Colon cancer was found at colonoscopy in 8 patients (11%). The location of colon cancer correlated with the site of bowel wall thickening in all (8 of 8) patients with the finding of colon cancer at colonoscopy. Colonic polyps were present in 22% of patients; 56% (9 out of 16) correlated with the location of bowel wall thickening on CT. Inflammatory bowel disease was found at colonoscopy and confirmed on histology in 5 of 74 (7%) patients. Unremarkable findings were present in 40 of 74 (54%) patients (normal colonoscopy 27%, haemorrhoids 7%, diverticulosis 20%).

Conclusion The chance finding of bowel wall thickening frequently identifies the presence of significant colonic pathology and accurately locates colon cancer. A finding of bowel wall thickening requires assessment by colonoscopy.

Colorectal cancer screening practice is influenced by ethnicity of patient and general practitioner

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Background Colorectal cancer (CRC) screening improves survival but requires appropriate recommendation by General Practitioner (GP) for successful implementation. CRC screening practices, however, may be influenced by barriers related to ethnicity and language differences between GP and patient.

Methods A quantitative mail survey was employed to determine GP knowledge, screening practices, and barriers towards CRC screening in Sydney South West. Demography, including GP ethnicity, local or foreign-trained, and practice characteristics were obtained to establish their association with screening practices and barriers.

Results Data from 170 GPs (73% males, median age 53 years [range 29–80], 33% foreign graduates) were available for analysis. Majority of GPs (88%) agreed that screening with Faecal Occult Blood Test (FOBT) improved survival. FOBT was the most frequently recommended test in average risk patients; however the starting age ranged from 40 (15.3%) to 50 years (68%), and frequency varied from 1 to 2 (71%) and 3 to 5 years (24%). Aside from screening (94%), FOBT was used in iron-deficiency anaemia (62%), altered bowel habits (56%), abdominal pain (25%) and rectal bleeding (25%), the latter more frequent in foreign-trained GPs (39% v 18%; $P = 0.01$). Most GPs were as likely to recommend CRC screening to migrants; however Middle Eastern migrants were less likely to participate compared with Australians. Most often listed major barriers of recommending CRC screening by GPs include time constraint, language barrier and confusing guidelines. Significantly more Australian-trained GPs reported time constraint (36% v 15%; $P = 0.01$) and language difficulty (11% v 2%; $P = 0.07$) as major barriers, compared with foreign-trained GPs. Additionally, more GP practices with high migrant population indicated patients do not recognise the need to have test while asymptomatic (56% v 36%; $P = 0.04$), compared with low migrant practices. Most GPs supported the use of a multi-lingual CRC screening brochure to improve participation.

Conclusions Considerable differences exist in the CRC screening practices of GPs, where FOBT screening was not in accordance with recommended guidelines in a third of GPs surveyed. Indications for FOBT also varied, especially in foreign-trained GPs. Patient ethnicity and the associated language and cultural barriers may affect uptake of CRC screening and therefore negatively impact on health care of non-English speaking populations. Resources to support GPs and culture-specific educational programs on CRC screening are recommended.

Corticosteroid-induced hypokalaemia in acute severe colitis: the potential benefit of spironolactone

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Introduction Acute severe ulcerative colitis (ASUC) occurs in up to 15% of UC patients. These attacks require intensive therapy including both oral and intravenous steroids. Their management may be complicated by significant hypokalemia which may delay urgent surgery.

Methods The aims of this study are to determine the frequency of hypokalaemia in a prospectively collected ASUC population, and establish the potential safety and efficacy of spironolactone as a prophylactic treatment for hypokalaemia in these patients. Data were prospectively collected in all patients treated for ASUC (based on Truelove and Witts criteria) at the RBWH (1996–2006), including K+ at admission, K+ peak and nadir. Patients were stratified according to spironolactone, K+ on admission and duration of iv steroids.

Results The results represent an interim analysis of 40/122 consecutive episodes of ASUC at the RBWH. 13/40 of these patient episodes used spironolactone prophylactically. [K+] at admission was abnormally low in 16/40, while 39/40 were below normal at their nadir. There were no significant differences in K+ nadir or peak between those on/not on spironolactone, but these data remain unadjusted until K+ data collection is complete.

Conclusions Hypokalaemia is common at admission in patients with ASUC, potentially dropping below normal in almost 100% of patients. A role for spironolactone will be determined upon completion of data collection and analysis.

Detection and follow-up of hepatic fibrosis in cystic fibrosis: a role for diagnostic liver biopsy and serum markers in evaluating outcomes of cystic fibrosis liver disease

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In Cystic Fibrosis, liver disease (CFLD) is an important cause of morbidity and mortality, but is difficult to identify clinically before portal hypertension (PHT) ensues. We examined the diagnostic utility of liver biopsy, common clinical modalities and serum markers to determine fibrosis and predict future development of PHT.

Forty children with suspected CFLD were identified from a large clinic population and prospectively followed up for a mean of 11 years. A cross-sectional study of 27 children had serum analysed by ELISA for markers of fibrogenesis.

Steatosis was evident in 70% patients. Overall fibrosis stages were as follows; 8 (20%) patients had stage 0, 9 (22.5%) children had stage 1 fibrosis, 11 (27.5%) children had stage 2, 10 children had stage 3 (25%) and 2 (5%) children had cirrhosis (stage 4). Blinded Scheuer fibrosis staging was non-concordant in 35% of biopsy pairs. A single pass biopsy would have missed a diagnosis of fibrosis in almost 12% of cases. Overall a dual-pass biopsy was associated with a significantly improved a diagnosis of fibrosis ($p = 0.045$). Clinical HSM (Sensitivity/Specificity = 0.66/0.62, Positive/Negative Predictive Values = 0.87/0.31), ALT (0.69/0.37, 0.81/0.23), isotope scintigraphy (0.71/0.0, 0.77/0.0), and Ultrasound (US) (0.80/0.50, 0.86/0.40) were poor predictors of liver fibrosis. The development of portal hypertension (PHT) was associated with a younger age of onset and predicted by higher stage liver fibrosis ($p = 0.002$). Multivariate logistic regression was performed to find clinical modalities useful in predicting PHT. The combination of clinical HSM, US and elevated ALT was moderately predictive of future development of PHT (AUROC = 0.85, $p = 0.004$). Additionally, increasing fibrosis stage was also moderately predicative of future development of PHT (AUROC = 0.85, $p < 0.001$). The development of portal hypertension (PHT) was associated with a younger age of onset and predicted by higher stage liver fibrosis ($p = 0.002$), and a combination of serum fibrogenesis markers (Collagen IV, MCP-1 and interleukin-8 (IL-8), PPV = 0.89), but not by US (PPV = 0.55).

Current clinical modalities for diagnosis of early CFLD without dual-pass liver biopsy lack specificity. Dual-pass biopsy proven liver fibrosis and selected serum marker analysis predict clinically significant CFLD, and deserve wider application and study

Do IBD patients change specialists? if so, does it matter?

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Introduction A positive patient-physician relationship and high quality specialist care is thought integral to good clinical outcomes in IBD, but little supportive evidence exists. Here the relationship between a patient-initiated change in treating specialist, the reasons for this and potentially associated factors, are examined.

Methods All IBD patients with any encounter(s) at a tertiary care hospital were prospectively identified over 6 months through ICD-10 coding and verified by case note review. Each patient was sent a survey comprising IBD knowledge, medication adherence, quality of life (QoL), satisfaction with medical care and other clinical/demographic data, including whether, and if so why, they had ever changed their treating specialist (reasons were categorised as "negative" if included patients' reporting loss of confidence, disagreement, and/or personality clash with the specialist, or "other").

Results 256 IBD patients were identified. Of 162 respondents (response rate 63.3%), 95 had Crohn's disease (CD) and 65 ulcerative colitis (UC); 53% were females. 70 (43%) respondents had changed specialist ever, with most 52 (74%) in the preceding 12 months; 30/70 (43%) gave a negative reason. Compared to everyone else, those with a negative reason for changing specialist were younger (median 35.2 vs 45.3 years, Mann-Whitney test, $p = 0.04$), had higher IBD knowledge but lower medication adherence, and lower satisfaction (median 5.0 vs 4.0, 19.0 vs 22.0, 14.0 vs 16.0 respectively, each $p < 0.03$). There were no other significant differences in demographic or disease-related factors between these groups. Logistic multivariable analysis revealed patients who changed specialist within 12 months of survey (any reason) were more likely to have UC, more currently active disease and more hospitalizations recently (OR 2.6, 95% CI [1.3, 5.4], OR 2.2 [1.0, 4.7], OR 2.0 [1.3, 3.0])

but were less likely to have had previous surgery OR 0.2 [0.1, 0.5], (all $p < 0.05$).

Conclusions A large proportion of IBD patients change specialists, apparently regularly, including many for negative reasons. Motivation to change specialist appears driven by patient factors (eg age, poor adherence), patient-physician discordance and disease factors (eg recent relapse). This should prompt specialists to improve followup/recall procedures, accepting that some patients may benefit from facilitated referral to an appropriate colleague.

Does abnormal bowel wall thickening on CT scan always warrant a colonoscopy?

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Aim Although previous studies have suggested that colonic wall thickening reported on abdominal CT scans is an important finding it is debatable if endoscopic evaluation is justified in every case. This retrospective study aims to 1) correlate CT findings of colonic thickening with endoscopic and histological findings, and 2) identify if clinical parameters can predict likelihood of abnormal findings.

Methods All colonoscopy reports from January 2007 to December 2008 from a single Hospital were retrieved. Patients with abnormal abdominal CT scans prior to the colonoscopy were identified. Medical records were analysed for endoscopic and histological reports, demographic and clinical parameters. CT findings of colonic thickening were evaluated and checked with colonoscopy findings; importance of specific clinical parameters was sought.

Results 1481 patients underwent colonoscopy (including flexible sigmoidoscopies) in the 24 months. 96 patients had colonic thickening reported on CT scan. Significant abnormalities on colonoscopy (and histology) were noted in 17.7% (n = 17). Colonic cancer, large polyps (≥1 cm), colitis, and appendicitis were seen in 4, 2, 10 and 1 patient, respectively. The median interval from CT scan to colonoscopy was 35 days. The data was subdivided into 3 groups: 1) Those who were diagnosed as having colitis on CT, 2) Those diagnosed with probable malignancy, and 3) Post diverticulitis follow-up. In the colitis group (n = 38), only 23.6% (n = 9) were subsequently found to have macroscopic and histological colitis. Altered bowel habits reported by 90% with macroscopic colitis (vs 60% without). In the subset where CT scan suggested probable malignancy (n = 20), only 2 patients (10%) had confirmed colorectal cancer; both patients were anaemic. Moreover, two cancers did not have appropriate CT correlation. In the post diverticulitis group (n = 26) all subsequent colonoscopic evaluations did not show any evidence of significant abnormality (i.e. stricturing or cancer).

Conclusions In most instances, colitis reported on CT scans was not observed at endoscopy. Prediction of colonic cancer based on CT report has a 10% yield. The practice of performing colonoscopic evaluation post clinical and radiological diagnosis of diverticulitis is unjustified. Alteration in bowel habits and anaemia was seen more commonly in colitis and cancer patients, respectively. Appropriate triaging of patients to colonoscopy will avoid unnecessary procedures and better resource allocation.

Does pancreatic stent insertion prior to biliary cannulation during endoscopic retrograde cholangiopancreatography reduce the risk of post-ERCP pancreatitis?

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Background On a per procedure basis, pancreatitis following endoscopic retrograde pancreatography (ERCP) is the most common, serious complication in endoscopic practice. Pancreatic stent insertion during ERCP is an increasingly adopted approach to reduce the risk of this complication.

Methods Prospectively collected data of 200 consecutive ERCPs supervised by a single endoscopist in a tertiary referral centre were analysed to determine patient and procedure-related risk factors for post-ERCP pancreatitis. An analysis was run on the subgroup of patients who had pancreatic stents inserted.

Results Of the 200 procedures in 175 patients (mean age 61 years, 58% female, deep biliary cannulation achieved in 95%), pancreatic stents were inserted prior to biliary cannulation in 31 patients (15.5%), in whom conventional wire guided biliary access could not be achieved. In this group, the common bile duct was subsequently accessed in 28 patients (91%) with 2 (6.5%) cases of post-ERCP pancreatitis. The risk of post-ERCP pancreatitis was not reduced in this group compared with those, who did not have pancreatic stents inserted (relative risk (RR) 0.85 95% confidence interval (CI) 0.19 to 3.78, $p = 0.55$). Overall, post-ERCP pancreatitis complicated 11 procedures (5.5%) and was more common among females (RR 7.24, 95% CI 0.95 to 55.49, $p = 0.02$). There were no deaths and no serious long term sequelae. No significant association was found between the risk of post-ERCP pancreatitis and procedure related factors including success of cannulation of the common bile duct (RR 1.90 95%, CI 0.27 to 13.42, $p = 0.44$) and performance of biliary sphincterotomy (RR 1.05 95%, CI 0.24 to 4.64, $p = 0.60$).

Conclusion Although placement of pancreatic stents may have prevented pancreatitis in some patients, overall it was not associated with a lower rate of post—ERCP pancreatitis, which is a significant on—going clinical problem. The precise role of pancreatic stenting in the prevention of post ERCP pancreatitis is yet to be defined.

Dual enteric stenting in a patient with advanced pancreatic cancer associated with gastric distortion. a case report

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Introduction We report a case of advanced pancreatic cancer resulting in duodenal and gastric outlet obstruction treated palliatively with two Cook Evolution enteric stents 'telescoped' into one another.

Background A 54 year old woman with advanced pancreatic cancer presented with symptoms of gastric outlet obstruction. Inoperable disease was noted at laparotomy 18 months earlier. A CT scan 1 month prior to presentation showed significant peritoneal metastases and ascites.

Method Endoscopy under anaesthetic assistance showed a large volume of retained gastric contents. The lower stomach was distorted and distended poorly with air insufflation. The endoscope was passed to the duodenum where a 3 cm tight stricture was noted in the second part of the duodenum. Under fluoroscopy, a guide wire was passed distally into the small bowel and a 12 cm Cook Evolution metal enteric stent was inserted. The proximal end of the stent was noted to be located in the contracted and distorted gastric antrum. A decision was therefore made to insert a second enteric stent by 'telescoping' this into the first stent. The

proximal end of the second stent was located in the gastric body. For the first week following stent insertion, a venting gastrostomy was required. Thereafter, the gastrostomy output gradually decreased and the patient's symptoms of vomiting improved. The patient succumbed to her illness 2 months later.

Conclusions This case highlights the challenges in the management of advanced pancreatic cancer in the presence of significant peritoneal and gastric serosal involvement. Enteric stenting is an effective means of palliation of symptoms of gastric outlet obstruction.

Early impact of the national bowel cancer screening program on referral patterns in a tertiary hospital setting

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Aim To determine whether there has been a change in referral patterns for colonoscopy after the introduction of the National Bowel Cancer Screening Program (NBCSP) with a particular focus on referrals to investigate positive faecal occult blood tests (FOBT) performed outside the program.

Method A retrospective review of the Austin Hospital endoscopy database was performed. During the years 2006 and 2008 (pre- and post-NBCSP introduction) all patients undergoing colonoscopy for positive FOBT (outside of the NBCSP) were identified. In addition, the indications for all colonoscopies performed during the July-September period of those years were recorded. The changes in incidence of referral indications were then analysed using Fishers exact test to determine significance.

Results Patients undergoing colonoscopy in 2006 and 2008 were well matched for age and gender. A total of 1840 and 2227 colonoscopies were performed during 2006 and 2008 respectively. The number of colonoscopies performed for positive FOBT (non NBCSP) rose significantly in 2008 when compared with those performed in 2006 (3.4% *vs.* 1%; $p < 0.0001$). For the July-September period, a total of 492 colonoscopies were performed in 2006 whilst 595 were performed in the corresponding period in 2008. During the July-September periods of the respective years, there was a statistically significant increase in the referrals for positive FOBT (non NBCSP) in 2008 compared with 2006 (2.9% *vs.* 1%; $p = 0.049$) however there was no change in the incidence of other referral indications (family history, past history, polyp follow up, investigation of anaemia, altered bowel habit, rectal bleeding, inflammatory bowel disease surveillance and weight loss).

Conclusion This preliminary data demonstrates that since the introduction of the National Bowel Cancer Screening Program there has been a significant increase in the number of colonoscopy referrals for positive FOBT outside of the screening program. This may be attributable to increased awareness of FOBT as a screening tool for colorectal cancer.

Emergency surgery for large hiatus hernia (LHH)

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Urgent repair of LHH is often done for gastric volvulus resulting in foregut obstruction, gastric strangulation and cardiorespiratory compromise. Morbidity and mortality are significant with mortality rates as high as 80% reported. We reviewed our series of acute LHH repairs.

Data from a prospectively maintained database was analysed. Patients undergoing surgery during the course of an emergency admission for LHH complications were included. Operative outcomes were recorded.

Between December 2001 and August 2008 21 patients underwent emergency surgery. The mean patient age was 74 (42–92) and Male : Female ratio 4 : 3. Foregut obstruction and pain were the predominant presenting symptoms. Laparoscopic repair was completed in 15 patients (71%). There were 3 conversions to open repair from laparoscopic approach and 3 patients in whom laparoscopic repair was not attempted. Two patients required resection of non-viable stomach. There were 2 in-hospital deaths (10%).

Relatively high rates of resection and mortality and a low laparoscopic repair rate underscore the recommended approach of early surgical repair of LHH.

Gastroenterology advanced training—how much is enough?

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Introduction Advanced Training in Gastroenterology comprises 2 years of clinical work and an elective year. The reasons for this arrangement are based on historical practice without evaluation as to whether this training adequately prepares graduates for the workforce. We surveyed Gastroenterologists two to 7 years following completion of training to determine the strengths and weaknesses of the current training program.

Methods All gastroenterologists who fulfilled the criteria were contacted by email and asked to partake in an anonymous online survey.

Results There was a 46% response rate (49/110). 79% were male with most aged 36–45. Overall, most respondents felt that the current training program prepared them well for public practice and endoscopy but less well for private practice and ambulatory care, surgical aspects of gastroenterology and functional gastrointestinal disorders. Some felt liver transplantation experience should be compulsory. Overall, 96% felt their current practice was completely or mostly in line with what they expected to be doing when they completed advanced training, although most had faced challenges transitioning to consultant practice.

The majority (53%) spent more than the standard 3 years to train in Gastroenterology (including higher degrees and fellowships). 40% of all respondents had higher degrees. 65% undertook subspecialty training during or after their formal advanced training programs. The top three subspecialties were in endoscopy (45%), inflammatory bowel disease (29%) and hepatology (23%). In their elective year, most (42%) undertook a predominantly clinical year (registrar-type position in general or subspecialty gastroenterology); 28% engaged in research whilst 24% trained in another specialty. Many expressed the positive value in an overseas experience and quality supervision. Currently, 78.3% were in full time work. 36% were supervising or co-supervising trainees. 96% felt that it was beneficial for trainees to move between hospitals during the core years of their advanced training.

Conclusions The current Australian gastroenterology training program is generally adequate in preparing trainees for consultant practice, but could be improved by increased emphasis on areas such as transitioning to private practice, ambulatory gastroenterology and functional GI diseases. Exposure to a variety of experiences by training in several different hospitals during core training was universally viewed as being important.

Gastroenterology advanced training in Australia—a perspective from the coal-face

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Introduction The RACP is developing new curricula for advanced training. The Gastroenterology Specialist Advisory Committee (SAC) decided to explore current trainees' perspectives to help develop a new advanced trainee curriculum.

Methods An on-line voluntary and anonymous survey was distributed to all gastroenterology trainees undergoing advanced training in 2009.

Results There was an 88% complete response rate (102/115). Of these 92% were adult trainees and 8% were paediatric trainees. Of those who had completed core training the majority (86%) felt that their core training had prepared them adequately for independent practice as a consultant gastroenterologist. However most respondents felt that core advanced training should be 3 years duration instead of the current 2 years. The majority, (86%) saw a benefit of moving between hospitals during core training. Of the trainees managing in-patients, 57% were managing 10 or more per day and 63% had three or more consultant ward rounds per week.

Of the 35 non-core trainees the top three fellowships were in advanced endoscopy (41%), hepatology (31%) and IBD (22%). Forty percent were undertaking a research fellowship. Sixty-four percent of trainees attended up to three endoscopy lists per week and the same number were on the on-call urgent endoscopy roster. For on-call endoscopy 15% of trainees were unsupervised. Paediatric trainees felt that greater access to endoscopic training was required.

The majority of trainees '*felt supported*'. When questioned on perceived quality of life, 50% of trainees described this as *'good'*, but 12% stated it as *'unsatisfactory'*. A suggestion of a new curriculum with dissemination of educational sessions via teleconferencing under the auspices of a '*National Gut School'* was supported by most trainees. Trainees also requested recurrently funded clinical fellowship positions and greater access to educational support for research.

Conclusions The majority of trainees feel that their core training has prepared them adequately for independent practice as consultant gastroenterologists. Overall trainees valued movement between hospitals for core training but felt that core training should be three instead of the current 2 years. However, trainees require adequate consultant support for out-of-hours emergency endoscopy.

General practitioner endorsement increases re-participation in screening for colorectal cancer

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Introduction Re-participation in faecal occult blood test (FOBT)-based screening for colorectal cancer (CRC) is important to maximise program sensitivity. However, factors that influence re-participation are not clearly understood. The study aim was to determine the impact of General Practitioner (GP) involvement on re-screening over four rounds of offers.

Methods Patients aged 50–79 were randomly selected from two general practice lists and randomly allocated to three groups of 600 (T1–T3). T1 received an invitation from the screening program provider signed by the screening coordinator (SC) and acted as a control group; T2 received an invitation from the screening provider impersonally endorsed by the invitee's named medical practice and signed by the SC; T3 received an invitation on the invitee's medical practice letterhead with a practice endorsement, signed by the GP of most recent contact. Invitation type remained constant over four rounds of screening. Invitation strategy impact was measured by comparing participation and retrocedence (non-participation in the current round after participation in the previous round).

Results Participation was highest in the group invited with specific GP endorsement (T3), and ranged from 41.7% to 43.3% over the four rounds. The number of people who participated in all four rounds was highest in the treatment groups with GP involvement, with the greatest effect seen in T3 (122, 20.3% versus T1: 81, 13.5%, $p < 0.05$). Inversely, the number of never having participated was highest in T1 and lowest in T3 although this was not significant (T1: 36.2% versus T3: 40.6%). Late entry to the program (non-participation followed by participation) did not differ across treatment groups. Retrocedence in each round was always lower in the GP-endorsed groups relative to control. Program retrocedence was significantly lower in the group receiving invitations personally endorsed by their GP (T3: 69/604, 11.4% versus T1 95/502, 18.9%, $p < 0.05$).

Conclusion Highest rates of re-screening participation and lowest rates of retrocedence are achieved with invitation strategies that involve GP endorsement. GP support is crucial to maximise re-screening for CRC.

GI symptoms do not differentiate patients with coeliac disease presenting to a community based consultant gastroenterology practice

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Introduction Many of the "classical" symptoms of coeliac disease are also symptoms of other diseases commonly encountered by gastroenterologists. This study aims to identify any symptoms that may be useful in predicting the diagnosis of coeliac disease in patients referred for gastroenterological assessment to a community based consultant gastroenterologist practice.

Methods All patients presenting to a single gastroenterologist's community based practice in Sydney with a new diagnosis of coeliac disease between January 2004 and September 2008 were identified using a computerised database. Cases of coeliac disease were defined as patients who had consistent small bowel biopsy as well as positive serological testing (anti TTG antibody and/or anti endomysial antibody), and/or clinical or pathological improvement on a gluten free diet. All patients presenting to the practice have a standard set of clinical features prospectively documented on a standardised proforma. The practice records were reviewed and symptoms at presentation of patients with coeliac disease were compared to those of age and sex matched controls (patients without coeliac disease seen during the same period) in a 1:2 ratio. Chi squared analysis was used to compare proportions and a p-value of ≤ 0.05 was considered significant.

Results Forty cases of coeliac disease were identified. The mean age at time of initial consultation was 42.5 years (range 15–74 years). There were 29 female cases. 25% had a family history of coeliac disease. 17.5% were anaemic. Patients with coeliac disease were more likely to report early satiety (20% v 5%, $p < 0.01$), less vomiting (7.5% v 22.5%, $p = 0.04$) and less mucous per rectum (2.5% v 17.5%, $p < 0.04$). There was a trend towards less weight gain in coeliac disease (5% v 17.5%, $p = 0.058$). There

was no statistically significant difference between the groups in terms of other recorded symptoms including weight loss, abdominal pain, diarrhoea, constipation, bloating, rectal bleeding or heartburn.

Conclusion Compared to patients presenting with other conditions there were few symptoms that differed in coeliac disease. There was no significant difference in "classical" coeliac symptoms. The difference in early satiety may be explained by disturbed motility or alteration in serotonin metabolism in coeliac disease. Gastroenterologists need to have a high index of suspicion of coeliac disease for all patients seen in their practices.

Gluten as a cause of gastrointestinal symptoms in patients who do not have coeliac disease

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Despite increased prescription of a gluten-free diet (GFD) as a treatment for functional gastrointestinal (GI) symptoms in those who do not have coeliac disease, there is minimal evidence that gluten is a trigger.

Aims To determine whether gluten ingestion can induce symptoms in non-coeliac individuals and to examine the mechanism.

Methods A double-blinded, randomised, placebo-controlled rechallenge trial was undertaken in patients with IBS in who coeliac disease was excluded (histology or gene typing) and who were symptomatically controlled on a GFD. Participants received gluten or placebo as two bread slices plus one muffin per day together with a GFD for 6 weeks. Symptoms were evaluated by a visual analogue scale and markers of intestinal inflammation/injury and immune activation were monitored.

Results 34 eligible patients (29–59 y, 4 men) were randomised. 56% had HLA-DQ2 and/or DQ8. Adherence to GFD and supplements was 100%. The mean (sem) of change of symptoms (mm) after 1 week of therapy are shown in the Table.

	Overall	Pain	Bloating	Wind	Stool satisfaction	Tiredness
Gluten (n = 19)	27 (7)	29 (7)	26 (7)	25 (8)	24 (7)	25 (6)
Placebo (n = 15)	9 (5)	5 (5)	6 (5)	5 (5)	2 (6)	–6 (5)
P-value*	0.05	0.02	0.03	0.05	0.02	0.001

*Independent samples t test.

Using a longitudinal model, the severity scores of pain ($p = 0.012$), satisfaction with stool consistency ($p = 0.016$) and tiredness ($p = 0.002$) were higher for those consuming the gluten (repeated measures ANOVA). Anti-gliadin antibodies were not induced. There were no changes in faecal lactoferrin, ultrasensitive CRP or intestinal permeability. There were no differences in any end-point in those with and without DQ2/DQ8.

Conclusions 'Non-coeliac gluten-intolerance' does exist, but no clues to the mechanism were elucidated. Clarification of the phenotype of such patients, the mechanisms by which gluten induce symptoms and clinical significance is required.

Haemobilia following percutaneous radiofrequency ablation of hepatocellular carcinoma: a case report and literature review

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Introduction Presented here is a case encountered in clinical practice of haemobilia arising due to intrahepatic pseudoaneurysm formation at the site of radiofrequency ablation. Subsequently, a review of the literature surrounding haemobilia and pseudoaneurysms following RFA is discussed.

Methods The case was reviewed by retrospective analysis of the hospital notes, laboratory results, radiology images and reports, and procedural reports. The case was then discussed with the primary clinicians involved in the patient's care. The literature review was conducted using database searches of Pubmed, Embase, Medline and Google Scholar and through searching references of articles deemed to be significant.

Results The published literature on haemobilia following RFA consists mainly of a retrospective analysis of a single institution's experience. This concludes haemobilia to be a rare (0.3%) and minor complication occurring in the early post procedural period (days 1–4) which is self limiting. In contrast, scattered case reports (including the one presented here) have noted haemobilia to be a presenting symptom of a bleeding intrahepatic pseudoaneurysm, a serious and potentially fatal condition requiring urgent intervention. Our case also describes this event occurring later in the post operative course and in the context of intercurrent sepsis.

Summary Although rare, haemobilia can be a life threatening complication following RFA and suspicion for pseudoaneurysm formation is warranted in those patients presenting with symptomatic malaena post procedure.

How accurate are hospital scales?

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Introduction As changes in a patient's weight may lead to significant changes in the treatment being administered it is vital that scales are accurate. In order to assess the accuracy of all scales in the Hospital and to identify the type(s) of scales that are likely to be most accurate, we conducted an audit of all scales located at The Royal Melbourne Hospital City Campus.

Methods A preliminary survey identified all scales in the hospital on the wards and in outpatient departments. On a single survey day, each scale was categorised and photographed. Scales were 'zeroed' and known standardised weights of 5 kg, 10 kg, 15 kg, 20 kg and 106 kg (a person) were then weighed on each scale. The primary measure of accuracy was the difference between the recorded and known weight of the 106 kg person.

Results 50 scales were identified. 43 scales were tested. Scales that were excluded were either not working or not able to be tested with the weights used. All scales in outpatients were digital. On the wards there was a mix of digital and analogue scales, sit-on and stand-on.

Digital scales were more accurate than analog scales with an accuracy of –1 to +1.5 kg compared to –3.5 to +1 kg for the analog scales ($p = 0.006$ Wilcoxon). Interquartile ranges were –0.45 to +0.07 kg for digital vs –2 to +0.5 kg for analog. The mean deviation from the correct weight was 0.06 kg for digital vs. 55 kg for the analog scales. The most accurate scales were in the renal wards (dialysis and inpatient). Some areas had scales that were unusable by the patients, for example high scales in the geriatric ward that even the 106 kg person had trouble getting onto. One ward (haematology) where decisions are often made on the basis of changes in weight had 5 sets of scales with significant inaccuracies and differences between the scales. In one ward no scales could be located and 5/23 outpatient rooms had no scales.

Conclusions In our hospital, digital scales are more accurate than analog scales. In areas where treatment decisions are made on the basis of changes in weight scales should be regularly checked for accuracy and patients should be weighed on a consistent set of scales. For greater accuracy and improved consistency in measuring patient weights, it is recommended that the hospital upgrade all scales to digital scales throughout the wards and outpatients.

How variable is the mayo score between obnservers and might this affect trial recruitment or outcome?

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Background The Mayo score for ulcerative colitis (UC) activity has 4 components: stool frequency (SF), rectal bleeding (RB), flexible sigmoidoscopy (FS) and physician's global assessment (PGA). How interobserver variation (IOV) affects the Mayo score and its impact on criteria for inclusion or outcome of clinical trials are unknown.

Methods 100 patients with UC were seen independently, each patient on the same day, by 4 gastroenterologists. Video-recorded FS occurred on the same day (scored by each of the 4 gastroenterologists). Each component of the score and total score were calculated for each patient. Comparison was made with inclusion criteria for ACT 1&2 trials (Mayo 6–12, endoscopy subscore ≥2), remission outcome (Mayo ≤ 2, no subscore >1) and partial Mayo score (endoscopy excluded). For clinical relevance (CR), scores were categorised as remission (≤2), mild (3–5), moderate (6–8), or severe (9–12) activity and an experienced, blinded clinician independently assigned an appropriate clinical category (ACC) to each patient. Quadratic weighted kappa statistics assessed agreement within the Mayo score.

Results Of 100 patients, there was complete agreement between 4 clinicians in total Mayo score in 6/96 (4 had no FS), varying by ≤2 points in 84/96, which changed clinical category in 23/84, or by >2 points in 12. Overall agreement for CR was good ($\kappa = 0.88$) and comparison to the clinician evaluated ACC was also good ($\kappa = 0.81$). Between clinicians there was complete agreement in 65% for SF, 74% for RB, but only 21% for FS and 45% for PGA. Most disagreement was by one category (median 81%, range 74–93). For inclusion criteria, all agreed in only 17/41 (41%). For remission, all agreed in only 20/43 (47%).

Conclusion There is high variability in Mayo scoring between observers, despite good agreement on clinical category. Complete agreement between observers for recruitment to clinical trials or outcome occurs in <50% and $^3/_4$ agreement in about 80% patients. IOV should be considered when calculating the power of clinical trials.

Investigation and management of irritable bowel syndrome in private practice: an audit

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Introduction Irritable bowel syndrome (IBS) is responsible for up to 50% of consultations with gastroenterologists. This audit examines the manner in which it is investigated and managed in a large private practice.

Methods Searches were conducted using Southern Gastrointestinal Services' electronic records system (Genie) to identify those patients who were diagnosed as having IBS. In the initial search, 557 patients were identified. 100 of these were randomly chosen and assessed of which 74 were appropriate for analysis. The records of these patients were then reviewed retrospectively and data regarding symptoms, IBS subtype, investigation and management were recorded in a database. Data was then extracted from this database and analysed using a spreadsheet.

Results The mean age of the 74 patients included in the detailed analysis was 48.7 years, and 68.9% were female. Diarrhoea predominant IBS was the most represented subtype of IBS (43.2%) of the total, with most of the remainder approximately equally divided between constipation predominant, mixed and undetermined. Patients were seen a mean 2.7 times, over the course of a mean of 6 months.

52.7% had one or more pathology tests requested by the gastroenterologist, with a further 21.6% having documented tests by the GP. 89.2% had one or more endoscopic procedures performed, most commonly colonoscopy. There was no difference between IBS subtypes, but colonoscopy was more likely to be done in those with one or more concerning symptoms as per the GESA IBS guidelines (92.0% vs. 73.5%). Only 6.9% of those having colonoscopy were recorded as ever having a previous colonoscopy and half of those were more than 5 years earlier.

Management approaches included dietary advice (51.4%), lifestyle advice (29.7%), antispasmodics (20.27%), fibre supplements (16.2%), antidepressants (14.9%) and probiotics (6.8%). 14.9% were referred to a dietician, and only 1.4% to a psychologist.

Conclusions This audit provides an insight into real-life practice in the investigation and management of IBS. It reveals a high rate for colonoscopy, suggesting that non-invasive modalities for investigating the colon (eg faecal calprotectin) should be more available, although there were reassuringly few repeated colonoscopies. The low rate of referral to dietetics and psychology may suggest underutilisation of these services.

Mesenchymal stem cells administered via novel selective mesenteric artery cannulation for the treatment of severe refractory Crohns disease

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Background Mesenchymal stem cells (MSC) are a population of stromal origin that, in adult life, resides primarily in the bone marrow. MSC have the ability to self-renew and differentiate into tissues of mesodermal origin and produce a potent immunosuppressive effect. Recent results from multicentre clinical trials have described the successful use of MSC in severe graft-versus-host disease (GvHD), in which 60% of patients obtained complete durable remission with no toxicity. We tested their therapeutic potential in a patient with refractory Crohn's disease. We administered MSC for the first time via selective mesenteric artery cannulation to ensure that the cells reached their target.

Method A 35 year old gentleman with severe refractory fistulizing Crohn's disease failing all conventional therapies, biological therapies and surgical defunctioning ileostomy received mesenchymal stem cells from a haplo-identical donor, after informed consent. MSC were injected after catheterisation of the mesenteric artery via the femoral route. Patient received 10^5/Kg MSC and 4 weeks later a second dose of 10^6/Kg. Patient was subject to antibiotic prophylaxis for 2 days before and 5 days after MSC infusion with ciprofloxacin. The patient was monitored with MRI and microbubble ultrasonography. The primary read-out of clinical response was CDAI (Crohn's disease activity index) and CRP.

Result The MSC infusion was uneventful and well tolerated. CDAI pre treatment was 384 and dropped to 258 2 weeks after the first infusion and remained as such at the time of the second infusion administered after 4 weeks. Three weeks after second infusion the CDAI was further reduced (212), thus making a total fall of 172 points (45% drop). CRP fell from 32 mg/dl pre-treatment to 10 mg/dl post-treatment. Peripheral blood Beta7 + CD8 + CD45RO T lymphocytes fell from 12% pre-treatment to 2% 6 hours post treatment and CD4 + CD25 + FoxP3 Treg cells fell from 9% pre-treatment to 1% 6 hours post-treatment suggestive of alteration of gut lymphocyte trafficking. His MRI abdomen/pelvis pre vs post MSC treatment showed slight changes in the transphincteric fistulae on the right, with an unchanged horseshoe intersphincteric extension on the left side.

No side effects have been recorded so far, 14 weeks after the last MSC infusion.

Conclusion Our data suggest that MSC administered directly via novel selective mesenteric route is well tolerated may produce clinical benefits in severe refractory Crohn's Disease. These encouraging preliminary data support the need for further studies.

Minimallly invasive oesophagectomy: the critical care perspective on a complicated case

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Introduction University Hospital Birmingham NHS Foundation Trust is a tertiary referral centre, with a collaboration of specialists involved in development of cutting edge surgical procedures. Minimally invasive surgery is the cutting edge of surgery yet its' use remains limited with regards to oesophagectomy. There are a number of complications associated, most notably respiratory. Critical care plays a major role in the post operative care of these patients. The current first line imaging modality for pulmonary complications is X-ray. However the one dimensional xray image can be very difficult to interpret and very often has to be taken in conjunction with clinical findings. CT scanning, however, gives a much more definitive diagnosis.

Method We retrospectively review the case of a 57 year old gentleman who underwent the newly developed minimally invasive procedure for oesophagectomy admitted to the Critical Care unit. Although there have been several reported cases of respiratory complications, there have been none presenting with an encysted hydro-pneumothorax resulting in failure of lung re-expansion post operatively, with impact on respiratory function and weaning as in this case.

Results Problems encountered included prolonged respiratory weaning and ITU stay. The cause of this was diagnosis of encysted hydro-pneumthorax. This was not detected with multiple chest radiographs or clinical findings until a CT scan was carried out.

Discussion and conclusions We discuss the difficulties in detecting a diagnosis of encysted hydro-pneumothorax on one dimensional xray imaging and the role of CT scanning. This case highlights the difficulties with imaging interpretation, the role of CT scanning and the impact on treatment and ITU stay when dealing with this kind of diagnosis.

Multiple muscle melt: a case of atorvastatin-induced severe hepatitis associated with both skeletal and smooth muscle myositis

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Introduction Hepatitis and myositis are recognised side effects of HMG-CoA reductase inhibitor ("statin") therapy. Severe hepatitis is less common and visceral myopathy is very rare and perhaps an under-recognised adverse event. We present an unusual case of paralytic ileus and urinary retention associated with severe rhabdomyolysis and hepatitis during atorvastatin therapy.

Patient history: A 51 yo man with a past history of alcoholic pancreatitis, hypertension and hyperlipidaemia presented with a 5 day history of jaundice associated with myalgia and lethargy. In the week prior to his presentation, atorvastatin was increased from 20 mg to 40 mg daily. He was not taking any other standard or alternative medications. Laboratory investigations revealed an acute hepatitis with an ALT 91IU/mL, AST 429 IU/mL and bilirubin 356 micromol/L. Renal function was normal with no acidosis; there was no encephalopathy. Ultrasound revealed hepatic fatty changes with no biliary obstruction. Within 24 hours, he developed severe progressive proximal and axial weakness which affected his vital capacity, but did not require intubation. Creatine kinase peaked at 16,000 U/L. Testing for vasculitic, myositic, infectious, autoimmune and paraneoplastic conditions was negative. By day 3, he developed a severe colonic pseudoobstruction. Urgent flexible sigmoidoscopic decompression failed and he required a defunctioning colostomy. At the same time he developed atonic urinary retention. MRI revealed T2 hyperintensities in all major muscle groups of the lower limb; biopsy of the vastus lateralis muscle revealed diffuse toxic rhabdomyolysis affecting all muscle layers consistent with a drug-related myositis. Given concerns regarding worsening myositis in both skeletal and smooth muscle, he was commenced hydrocortisone 100 mg IV QID with subsequent resolution of hepatitis, pseudoobstruction and bladder ileus over 21 days.

Conclusions In the setting of statin-induced hepatitis, the treating clinician should be aware of the potential for co-existing smooth muscle and skeletal myositis that can cause significant bowel and bladder dysfunction as well as respiratory compromise.

Non-invasive imaging of transmural inflammation in Crohns disease using microbubble contrast enhanced ultrasonography

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Background Crohn's disease of the gastrointestinal tract is characterized by segmental transmural inflammation and typically runs a chronic relapsing and remitting course. Determination of disease activity in patients with Crohn's disease has traditionally been with a combination of clinical assessment, laboratory tests, endoscopy and imaging such as barium studies, CT scan and magnetic resonance imaging (MRI). Since most patients with Crohn's disease require frequent evaluation, there is a need for a reliable, non-invasive test for determining disease activity, which does not use ionizing radiation as these patients are often young. Recent published animal data suggests that using transabdominal ultrasound enhanced with encapsulated gaseous microbubbles may provide a reliable, noninvasive means to detect and quantify areas of intestinal inflammation. Colour Doppler ultrasonography allows depiction of inflammatory hyperperfusion and morphological changes of the intestinal wall at the site of inflammation. These gas filled bubbles can be safely injected intravenously to enhance an ultrasound scan.

Method This pilot study evaluated the role of Sonovue™ Contrast-enhanced ultrasonography (CEU) for use as a diagnostic tool in patients with IBD. We looked at 10 active Crohn's disease (CD) patients, newly diagnosed, or on Anti TNF alpha and/or on immunosuppressive treatment, and 3 quiescent CD. Patients were categorized as having active or quiescent disease using a combination of endoscopy, MR imaging as well as conventional inflammatory markers.

Result Contrast-enhanced ultrasonography techniques provided a depiction of small bowel wall perfusion due to the extremely high sensitivity of non-linear signals produced by microbubble insonation.

	Bowel TP: s Mean ± SD	Bowel PI: AU	Bowel/ Mesenteric TP ratio	Mesenteric TP	Mesenteric PI: AU
Active	6.5 ± 2.9	129.9 ± 146.4	1.0 ± 0.554	8.54 ± 6.15	5439 ± 2232
Non-active	15.67 ± 13.2	345 ± 386	2.75 ± 2.84	8.21 ± 7.7	6669 ± 4224

TP: Time to peak is a measure of speed of flow, PI: peak intensty is a measure of the vascular volume. Ratio bowel to mesenteric TPs is used to normalise for any differences in technique and systemic status. There are differences in the parameters between active vs non-active (see figure above).

Thickened bowel wall with increased vascularity denoted reliably all patients with active inflammation in the study distinguishing them from non-inflamed patients and fibrostenotic patients. No correlation between any of the parameters with the CDAI score was found. Differences were observed which require to be replicated in a further larger cohort.

Software reconstruction of volume of inflammation quantitatively appeared feasible but would require validation.

Conclusion This technology has the potential to be used in a clinical setting to non-invasively detect intestinal inflammation, as well as monitor transmural disease inflammation during the course and treatment of IBD.

One year mortality after hospitalisation for acute upper gastrointestinal bleeding and hip fracture is similar

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30-day mortality of patients with upper gastrointestinal bleeding (UGIB) has been extensively described, however little is known about the longer term outcomes of these patients. We examined the characteristics and mortality of patients presenting to Fremantle Hospital with acute UGIB between 1 May 2006 and 30 April 2007 (12 months). Text of abstract starts here. Do not change font size, line spacing or character spacing. Introduction of two or three sentences. Introduction of two or three sentences.

269 patients were identified after excluding patients in whom the history, examination, laboratory and endoscopy findings did not support a diagnosis of acute UGIB. Median age was 71 years (IQR 53–80). 64% were male and 89% presented from home, with 11% from a residential aged care facility. Mean haemoglobin was 96 g/L. Most (78%) presented on a weekday, although overall 47% presented outside of standard working hours. 41% had been treated with antiplatelet drugs or NSAIDs or in combination and 13% were anticoagulated. Overall 1 year mortality was 29% and this was significantly associated with outside of hours presentation 37% vs 27%, p = 0.008). Predictors of 1 year mortality were at Results, including figure if required, inserted here.

Peptic ulcer disease haemorrhage in Newcastle, NSW, Australia

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Peptic ulcer disease (PUD) risk factors have changed, as has the impact of treatment on morbidity and mortality. We evaluated patients admitted between 2004 and 2008 to John Hunter Hospital with gastrointestinal haemorrhage (GIH) due to PUD. Variables assessed included co-morbidities, medication use, *H. pylori* status and Rockall score. Data was analysed using SAS statistical software.

PUD was confirmed in 261 patients (55% male); of which 145 were gastric and 116 duodenal. The mean age was 70 years. On admission 38% of patients had haemodynamic instability and 92% had one or more co-morbidity. Helicobacter pylori status was checked in the majority of patients. Consumption of ulcerogenic medications at the time of admission was frequent (NSAIDS 22%, aspirin 41%, clopidogrel or warfarin 10%) and proton pump inhibitors infrequent (15%). A gastroenterologist managed all patients according to their usual practice. Blood transfusions were used cautiously with only minority of patients receiving over 3 units. Few patients were referred for surgery (3.4%) and death uncommon (3.1%) but both were significantly higher for the duodenal ulcer group.

PUD remains a public health problem with modifiable risk factors such as *H. pylori* infection and NSAID use should be targeted to reduce burden of illness.

Physical examination on trial: an analysis of the yield of abdominal examination in low risk patients

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Despite being used for millennia, there has been little scrutiny of the yield of abdominal examination. The aim of this study therefore, was to determine the yield of findings on abdominal examination in patients presenting with non-acute upper gastrointestinal symptoms. We hypothesised that this would be negligible in a selected, low risk cohort.

Methods Prospective electronic records of all patients aged 18 to 55 years presenting to an ambulatory gastroenterology service were reviewed. Patients with upper gut predominant symptoms (including heartburn, regurgitation, nausea, epigastric pain or discomfort) were included. Findings on abdominal examination were collated. All patients were weighed. Patients were excluded if there were any alarm symptoms, a history of hazardous alcohol consumption or had predominant lower gut symptoms. Acute presentations were also excluded. A large sample size (n = 500) was chosen to provide a narrow confidence interval.

Results A total of 1,824 consecutive files were reviewed to obtain 500 patients who met eligibility criteria. Mean age was 41 (±9.5) years, 54.6% were female. More than 1/3 of patients were observed to be overweight or obese. However, other than this, there was a dearth of findings on abdominal examination. No organomegaly or other abdominal masses were found. (One patient had a known small umbilical hernia and 3 patients had parotidomegaly observed at interview). The 95% confidence interval for no findings (0% prevalence) is 0.00–0.0074. With this sample size and this yield, the inferred number needed to examine to detect a finding is between 135 and infinity.

Conclusion In these low risk patients, abdominal examination had a negligible yield apart from the recognition of excess weight. This suggests that the rationale for performing abdominal examination in these highly

selected patients is for reasons other than the expectation of a physical finding that will guide investigations or management. The abdominal examination, considered purely as a test, had no yield in this cohort. The "laying on of hands" in these patients, offers perhaps, a pathway of communication and reassurance between the doctor and patient that may have value beyond the realm of science.

Prevalence and predictors for helicobacter pylori infection in patients undergoing percutaneous coronary intervention

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Combination aspirin and clopidogrel is essential following percutaneous coronary intervention (PCI) with stent implantation, however, the risk of gastrointestinal haemorrhage (GIH) associated with such combination therapy is estimated at 10% at 1 year. We aimed to determine the prevalence of *H. pylori* infection and GIH risk factors in patients with known coronary artery disease undergoing PCI (elective or acute) at a single tertiary referral hospital.

Methods One hundred and ninety-seven consecutive patients presented to our institution for PCI between September 2008 and December 2008. *H. pylori* infection was assessed by serological testing for anti-Hp IgG antibodies using a commercial ELISA kit. Results were reported as positive, negative or equivocal.

Results Mean age (S.D.) of patients was 64.5 (±10.9) years and 73% of them were male. The serology test was positive in 38.1%, negative in 59.9% and borderline in 2%. Patients positive for *H. pylori* were more likely to be on antiplatelet and proton pump inhibitor therapy and have a previous history of GIH. (Table 1). The prevalence of *H. pylori* infection was higher in those >65 years of age (46.1% vs 31.5%, $p < 0.01$). Table 1:

	H. pylori positive	H. pylori negative	P value
Antiplatelet therapy (pre PCI)	65.3%	45.9%	<0.05
Warfarin (pre PCI)	5.3%	5.7%	ns
Alcohol intake >12 g/day	14.0%	10.7%	ns
Current Smoker	22.7%	23.0%	ns
Proton pump inhibitor	48%	20.5%	<0.001
Previous eradication therapy	4.0%	1.0%	0.03

Conclusions *H. pylori* infection is common in this age group. Patients undergoing PCI are a high risk group for ulcer complications irrespective of *H. pylori* status. Given the difficulties of managing a subsequent GIH an initial stratified plan of risk reduction is urgently needed

Prospective clinical and biochemical assessment of iron deficient patients referred for endoscopic investigation

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Iron deficiency (ID) is often associated with pathological findings in the gastrointestinal tract. This study measured the incidence of endoscopic findings in patients with ID to assist in prioritising procedures and advising patients on the likely outcome of investigations.

Methods From November 2008 and May 2009, patients referred for endoscopic procedures at the Royal Prince Alfred Hospital were assessed. Patients with serum ferritin levels <20 μg/L were included; in the presence of systemic inflammation, patients with a decrease in haemoglobin (<130 g/L male, 115 g/L female) or low MCV/MCH, were included. Patients were excluded if they had obvious gastrointestinal bleeding in the preceding 4 weeks requiring transfusion of >1 unit of packed cells; patients with evidence of non-GI overt blood loss were also excluded. Endoscopic findings and histological diagnoses were categorised by how clearly a source of GI blood loss could be explained by pathology encountered.

Results 33 women and 10 men with evidence of ID were enrolled; 37 patients were referred as outpatients. The mean age was 60 (range 25–85); 11 patients (10 female) were aged <50. The median ferritin was 7 (2–73), and mean haemoglobin 97 (55–146), MCV 79 (53–96), MCH 25 (14–31). Alarm symptoms were reported by 6/43 (14%) and general gastrointestinal symptoms in 6/43 (14%). Only 2 had a previous endoscopic procedure within 5 years. 37 (86%) underwent endoscopy and colonoscopy, 4 (9%) had endoscopy only and 2 (5%) colonoscopy only; 22 (54%) had normal or indeterminate findings, 12 (29%) had pathology likely contributing to ID. In 7 (17%) a lesion definitely contributing to ID was found; 4 at endoscopy (carcinoma 1, chronic ulcer 2, angioectasia 1) and 3 at colonoscopy (carcinoma 2, polyp 1). In female patients aged <50, lesions definitely or likely to lead to ID were found in 3 (30%) vs 16 patients (52%) in = 50 or male, ($p = 0.23$). Pathology was found in 66% in alarm symptoms, 33% with GI symptoms and 33% in asymptomatic cases. Inpatients with ID had pathology in 40% vs outpatients 43%.

Conclusions Our study demonstrates a high incidence of pathology of the GI tract that explain iron deficiency states in patients referred for gastroenterology review and in those with alarm symptoms. Patients with iron deficiency aged 50 or younger were less frequently found to have gastrointestinal pathology contributing to this state than those aged over 50.

Proximal constipation in ulcerative colitis

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Proximal constipation (PC) may complicate ulcerative colitis (UC) producing symptoms of bowel irregularity, bloating and abdominal pain. This is of potential clinical importance in that the symptoms may be misinterpreted as due to active disease, and the delivery of 5-ASA to the distal colon may be impaired. The prevalence of PC, however, is not known.

Aim To address the prevalence and potential clinical impact of PC in UC.

Methods A retrospective audit of consecutively reviewed patients with UC in an adult IBD Clinic was performed. PC was defined as decreased frequency of defaecation, hard stools, or bloating, pain and wind with constipation or radiological signs of right colonic faecal loading. Clinical features, investigations, disease activity (Colitis Activity Index, CAI), and medication usage of those with and without PC were compared.

Results 89 patients—44 male, mean age 48 (range 14–84) y, mean duration of disease 8 (0.25–35) y were studied. 39 (44%) had evidence of PC at some stage of their disease; the majority (77%) occurring only with active disease, a small proportion had PC only when inactive (8%) or irrespective of activity (15%).

PC was confirmed by abdominal imaging (x-ray) in 38% of PC cases.

		PC	Never PC
Extent	Pancolitis	10%	32%
	Extensive	10%	10%
	Left	33%	40%
	Proctitis	46%	18%
Use of fibre or laxatives		69%	5%
CAI (mean ± SEM)		Present 4.9 ± 0.31	
*Compared when present p = 0.0001		Absent 1.3 ± 0.31*	

PC is associated with distal disease (r = –0.295, p = 0.005) and female gender (r = –0.303, p = 0.004). Patients with PC have a higher use of laxatives and fibre supplements compared with those without PC. In patients with PC, episodes of PC were associated with a higher CAI of 4.9 ± 0.31 vs 1.9 ± 0.31 when PC is absent (p < 0.0001). Anti-inflammatory medication was increased in 77% of patients during PC.

Conclusions PC defined by symptoms is common. Active identification, especially in women, and rectification of PC should be standard in UC management to improve symptoms and oral drug delivery to affected colonic mucosa.

Referral for further intervention after capsule endoscopy-indications and outcome

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Capsule endoscopy (CE) has an established role in the investigation of obscure gastrointestinal bleeding. Complementary procedures include push enteroscopy (PE) and double balloon enteroscopy (DBE) to further characterise and/or treat the identified lesions. This study aimed to determine the referral rate for further procedures (enteroscopy and surgery) after CE, the reasons for referral and the outcome of these procedures.

Methods 571 CE performed at St Vincent's Hospital Sydney and Pennant Hills Endoscopy Centre between January 2004 and December 2008 were reviewed. Patients who were referred for DBE, PE or directly to surgery were identified. Patient characteristics, CE indications and results, referrals for PE, DBE and surgery and the outcome of these procedures were analysed.

Results 50 patients were referred for enteroscopy or directly to surgery during a 5 year period (8.8% of all CE). The mean age of the patients was 61 (range, 28–87 years). The indications for capsule endoscopy in these patients were iron deficiency anaemia (IDA) in 32 patients (64% of cases), obscure overt gastrointestinal bleeding in 16 patients (32%) and familial polyposis syndrome in 2 patients (4%). 34 patients were referred for DBE, 13 patients for push enteroscopy and 3 patients proceeded directly to surgery (2 with tumours and 1 with obstructing NSAID ulcer). The reason for referral for DBE and PE were vascular lesions in 20 patients (44.4%), inflammatory lesions in 14 (31.1%) and tumours in 11 (24.5%). Two patients with a normal CE underwent DBE because of recurrent severe IDA in one case and suspicion of small bowel mass on CT in the other. In both cases the DBE was normal. Out of the 32 patients that underwent DBE after positive findings on CE, significant lesions were identified in 26 patients (81.2%), 5 patients had a normal study and 1 patient had a failed study due to adhesions. Of the 5 patients with a negative DBE, CE had reported inflammatory lesions in 2, tumours (polyps) in 2 and angioectasia in 1. Therapeutic and diagnostic procedures were performed in 23 patients at DBE (12 argon plasma coagulation [APC], 4 polypectomies and 7 diagnostic biopsies). In the 13 patients that underwent PE significant findings were seen in 11 patients (84%) (8 patients treated with APC, 2 diagnostic biopsies and 1 polypectomy) and 2 patients had a normal study.

Conclusions The majority of patients that undergo CE are managed medically with only 8.8% referred to enteroscopy or surgery. In those selected patients referred for DBE or PE, 82.2% of the lesions seen at CE were identified and diagnostic and therapeutic procedures were performed.

Remember . . . the mouth is the start of the gastrointestinal tract

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A variety of gastrointestinal diseases may present with characteristic oral manifestations. Crohn's disease is one of the two major inflammatory bowel disorders, characterized by the presence of granulomatous inflammation of the bowel wall. The incidence and prevalence of Crohn's disease in Australia remains unknown. Similarly, the prevalence of intestinal involvement in patients who present with initial oral manifestations is uncertain.

A series of 6 cases of Crohn's disease, with oral manifestations is reported, together with their clinical, serological, and histopathological findings. Correlation between the oral manifestations and the gastrointestinal disease activity was also documented in all of these cases.

Four of 6 cases were female. The age at the time of diagnosis ranged from 12 years to 58 years with a mean age of 30 years. Oral mucosal biopsies of 3 of 6 cases, with initial oral manifestations, showed typical non-necrotizing chronic granulomatous inflammation and absence of any foreign material. Special stains for mycobacteria and fungi were negative. Serological investigations of these cases revealed a negative p-ANCA (perinuclear anti-neutrophilic cytoplasmic antibody) and a positive ASCA (anti-*Saccharomyces cerevisiae* antibody). Endoscopic examination and mucosal biopsies from multiple sites of remaining part of the GIT showed no significant abnormalities. Investigations for other causes of orofacial granulomatosis were also unremarkable. The oral lesions resolved with the use of topical therapies, only. In contrast, the remaining 3 cases with biopsy-proven Crohn's disease of the GIT developed oral lesions later, despite standard systemic therapy. Topical therapy or intra-lesional injection of corticosteroids, in addition to the systemic therapy facilitated control of the oral manifestations of Crohn's disease in these 3 cases.

Although Crohn's disease commonly affects the terminal part of the ileum and the proximal colon, it is now well recognized that the disease may affect any part of the GI tract from mouth to anus. Oral manifestations may represent an early sign of Crohn's disease as well as reflect disease activity in the remaining parts of the GIT.

Repeated course of cyclosporine may delay the need for colectomy in severe ulcerative colitis: a clinical audit

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Introduction Cyclosporine (CSA) received initial attention in the mid 1990s for its ability to induce impressive remission rates in steroid-refractory severe Ulcerative Colitis (UC). This enthusiasm seems to have waned in the era of biologicals. There is little data about repeated courses of intravenous (IV) or oral CSA to re-induce remission in recurrent flares of UC after a previous response as an alternative to moving to biologicals or colectomy.

Aims 1. Clinical audit of CSA use to induce remission in steroid-resistant acute UC and 2. Subgroup analysis of repeated use CSA to re-induce remission in relapses of UC in patients who responded to this treatment previously.
Methods A retrospective study was conducted in John Hunter Hospital (JHH) of all patients who received IV (dose 2 mg/kg/day) or oral (4 mg/kg/day) CSA between June 2003 to April 2008. Patients who had received CSA for UC were identified from the JHH pharmacy database. Further information was extracted from medical records, pathology results and notes from private practice of one gastroenterologist (ES). Response to treatment was defined as not progressing to colectomy during the same hospital admission.
Results Statistical calculation was performed using Stata 10.0. 29 patients who had received CSA (25 by IV administration) for acute UC were identified. 69% (20/29) received concurrent steroids therapy. 51% (15/29) were males. The median age was 28 years (range 13–71 years). The median duration of the disease before receiving the first dose of CSA was 36 months (range 0–228 months). All 29 patients avoided urgent colectomy with 20% (6/29) eventually needing surgery during this study period. Median time to surgery from CSA treatment is 56.95 months (range 1–86.7).48% (14/29) had complications from IV CSA use, with 78% (11/14) experiencing IV site infection. Nine patients received >1 course CSA at subsequent admissions for flares of UC. There was no difference in colectomy rate in those who had received CSA on one occasion versus those who received subsequent CSA for flares of UC: 20% (4/20) versus 22% (2/9) respectively. However the average time to colectomy for those who had a single course of CSA was 19.5 months shorter compared to those to who had >1 CSA course.
Conclusion Treatment of severe UC with CSA is relatively safe and effective. In the setting of the cost of and restrictions placed on biologicals, we concluded that CSA is an effective and readily accessible drug for inducing remission in severe UC and that it can allow some to postpone colectomy for a significant period. There is also room for prospective studies of repeated courses of CSA to induce remission in acute UC with aim of preserving the colon for as long as possible.

Respiratory symptoms in patients with para-oesophageal hernias: quality of life and symptomatic outcome following repair

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The relationship between gastro-oesophageal reflux and respiratory symptoms is well established as is the symptomatic response to fundoplication surgery. Less clear is the likelihood of response of respiratory symptoms in patients undergoing repair of para-oesophageal hernias (POH).
Methods Symptomatic and quality of life outcome was evaluated from patients with differing degrees of reported respiratory symptoms in a consecutive series of 180 patients undergoing repair of POH. Patients were divided into three groups; Group A, patients with dyspnoea and no foregut symptoms, Group B, patients who reported dyspnoea as one of their predominant symptoms (usually along with foregut symptoms), and Group C, patients who did not report respiratory symptoms. The standard surgical approach for the three groups was a posterior hiatal repair followed by fundoplication. Patient satisfaction and symptom and quality of life outcome were recorded following surgery. All symptom outcome and quality of life data was collected by a research nurse independent of surgical follow-up.
Results There was no difference in patient satisfaction and QOL improvement between the 3 groups. Change in QOLRAD at 6 weeks and 2 years postoperatively; GroupA: 2.352, Group B:2.128 and Group C: 2.018. (All p values greater than 0.7 on Mann-Whitney U test).

All three groups of patients reported high levels of satisfaction.
Conclusions Symptom and quality of life improvement occurs following surgery in patients with respiratory symptoms related to para-oesophageal hernia. Surgical repair should therefore be offered to this group of patients.

Retrospective audit of health screening questionnaire as effective triage tool for directing participants along a bowel cancer screening pathway

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Introduction As demand on outpatient endoscopic services increase, triaging referral processes need to be developed to ensure appropriate and efficient care coordination is achieved. The aim of this study is to determine whether the implementation of a Health Screening Questionnaire within a bowel cancer screening setting is a successful triage tool for this purpose.
Method A retrospective audit of Queensland Bowel Cancer Screening (QBCSP) Health Screening Questionnaires (HSQ) was conducted at a single QBCSP catchment site (Brisbane North). Two hundred and fifty-three consecutive participants (n = 253) with a HSQ and assessment colonoscopy completed during an 18-month period (February 2007-August 2008) were included. The HSQ was developed by the QBCSP for collection of baseline medical, surgical and social information to enable appropriate triage of participants either directly to colonoscopy, or indirectly i.e. those participants requiring additional medical management prior to colonoscopy. Seventeen HSQ subheadings relating to mental health, coagulation risk, medical and surgical conditions were audited using a tool created for this study.
Results The most common conditions identified by the HSQ triage tool were the gastrointestinal tract (69.6%), heart disease (57%), pelvic surgery (44.7%) coagulation risk (39.5%), lungs (34.8%) and other medical/surgical conditions (50.6%). 205 participants (89.7%) had their care entirely coordinated by the Gastroenterology Nurse Coordinator (GENC) along the direct screening pathway, utilising QBCSP policies, protocols and hospital anticoagulant and diabetic management guidelines. 22 (9.7%) participants required further advice either by phone or in person from a gastroenterology consultant or relevant specialist. These two groups of participants had an average procedure wait time of 31 days. The indirect screening pathway, which had an average procedure wait time of 50 days, was recorded for 26 participants. Delays related to specialist clinics (n = 12 4.7%), inpatient admission (n = 3 1.19%), chart review (n = 3 1.19%) or blood tests requested (n = 1 0.39%). No cancellations at time of procedure or adverse events related to clinical management were recorded.
Summary A health screening questionnaire is an appropriate triage tool when used by specialist nurses within a bowel cancer screening setting to decrease patient waiting times for colonoscopy and meet the QBCSP policy that colonoscopies be completed within 30 days of referral.

Review of tips experience at a victorian tertiary hospital

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Introduction The recent randomized controlled trial on an early decision for TIPS improving survival in high risk cirrhotic patients *Garcia-Pagan JC et al. J Hepatology (48) S2, 2008 p S371* confirms the effectiveness of

TIPS in controlling variceal bleeding and reducing mortality. We reviewed the TIPS experience since its introduction at our centre in 2003 focusing particularly on the success rates and complications during follow up.

Methods A retrospective audit of all patients who underwent TIPS over a 6 year period from 2003 to present was performed. Data collected included: age, aetiology of liver disease, Child-Pugh and MELD scores, indication for TIPS, method of follow up, outcomes and early and late complications of TIPS.

Results There were 14 patients who underwent TIPS procedures at St Vincent's from January 2003 to May 2009, the indications being acute variceal haemorrhage (n = 11; 78%) and refractory ascites (n = 3; 22%). During the period of January 2003 to May 2009, there were 81 patients who presented with variceal haemorrhage which equated to 17% of patients who had TIPS performed. The mean age of subjects was 57 yrs and 9 (64%) were male. The predominant underlying aetiologies of liver disease were alcohol (n = 6; 42%), hepatitis C (n = 6; 42%), and primary biliary cirrhosis (n = 2; 14%). Four (28%) subjects were Child Pugh A while 10 had advanced cirrhosis; Child-Pugh B (n = 4) or C (n = 6) liver disease. The mean MELD score was 9 (range 3 to 18) and median Child-Pugh score was 8 (range 6 to 11). Amongst the variceal haemorrhage group TIPS achieved initial haemostasis in 9 out of 11 (82%) while two out of three patients with refractory ascites had complete resolution after TIPS. Rebleeding occurred in 1 patient a month post TIPS due to shunt blockage. During follow up hepatic encephalopathy (HE) occurred in 4 (30%) patients with the time of onset ranging from 30 to 180 days post TIPS. Of the patients that had variceal bleeding, 8 (72%) out of 11 were due to oesophageal and 3 were due to oesophago-gastric varices with successful haemostasis achieved in the oesophageal varices group while 2/3 were successful in the oesophago-gastric group. Our cohort included 6 (42%) patients with Child Pugh C liver disease with successful outcomes in 4 (66%) of the patients with improvement in ascites and cessation of bleeding. However, ongoing bleeding and eventual death occurred in one patient while another patient had recurrent ascites despite TIPS. Shunt blockage occurred in 6 (43%) subjects which ranged from 3 days to 4 months post TIPS. All except three patients are still alive post TIPS. The time from presentation to TIPS of our cohort of patients ranged from 1–20 days.

Summary and conclusions The use of TIPS at our centre was successful in achieving haemostasis and resolution of ascites in majority of patients. Cessation of bleeding was achieved in 80% of cases amongst those with Pugh C Liver disease. Our data confirms that TIPS is an effective modality for achieving haemostasis in the setting of refractory variceal bleeding even among patients with advanced liver disease. The successful use of TIPS depends on careful patient selection and caution is needed when TIPS is placed in those with end stage liver disease.

The efficacy of levofloxacin based triple therapy for difficult to eradicate *H. pylori* in clinical practice

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Failure of first line *H. pylori* eradication therapy is common and subsequent treatment is hindered by antimicrobial resistance, reduced access, adverse effects and drug allergy. Levofloxacin, a fluorinated carboxyquinolone, has been used as part of a salvage therapy with encouraging results abroad but there are no local data. The aim of this study was to assess the efficacy of levofloxacin triple therapy in a "real world" clinical practice setting for patients with difficult to eradicate *H. pylori*.

Methods Prospective patients referred after first line treatment failure were prescribed esomeprazole 40 mg, amoxicillin 1 g and levofloxacin 500 mg each twice daily for 10 days. All patients received detailed written and verbal compliance support. Clinical and demographic data including prior treatment number and type, compliance and adverse effects were recorded. Those with a history of penicillin allergy were tested immunologically and treated if amoxicillin was considered safe to use (2 of 3 patients tested). Outcome assessment was by ^{13}C-urea breath test and/or histology and urease test.

Results To date, in 31 evaluable patients (65% female, median age 51 years, range 27–74; 4 smokers), the indications for treatment were dyspepsia and risk reduction in 52%, peptic ulcer disease in 26% and increased gastric cancer risk (family history or intestinal metaplasia) in 23%. The median number of previous treatments was 2 (range 1–6).

Eradication of *H. pylori* was achieved in 87% of patients (intention to treat) and 90% (per protocol). The eradication rate did not differ according to number of prior treatments: 93% in patients in whom this was the 2nd treatment (n = 15) compared with 81% when 2 or more prior treatments had been given (n = 16; p = NS). Outcome was not correlated with age, gender, ethnicity or indication for treatment. Compliance was excellent (30/31). No serious adverse effects were observed; mild adverse effects were reported in 16% (nausea, thrush, sore throat, constipation).

Conclusion These data support the use of levofloxacin based triple therapy as an effective salvage combination after failure of first line *H. pylori* eradication in clinical practice. Comparative trials are required to determine if it should be used before other second line therapies.

The impact of carbon dioxide insufflation on efficacy, patient tolerance and safety during colonoscopy: a prospective double blind randomised controlled study

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Introduction Abdominal pain due to colonic distension can be distressing for the patient. The aim of the study was to compare the impact of CO_2 and air insufflation on efficacy, patient tolerance and safety during colonoscopy.

Methods Patients referred for colonoscopy were randomised to receive either carbon dioxide or air insufflation during the procedure. Both the colonoscopist and patient were blinded to the type of gas used. During the procedure, insertion and withdrawal times, caecal intubation rates and total sedation given were recorded. Capnography readings were recorded at the commencement of colonoscopy, upon intubation of the caecum and at conclusion of the procedure. Complications were also documented. The level of sedation and magnitude of patient discomfort during the procedure were assessed by a nurse using a visual analogue scale (VAS) (0–3). The patients also graded their level of discomfort and abdominal bloating using a similar VAS.

Results A total of 142 procedures were performed with 72 in the air arm and 70 in the CO_2 arm. The mean age (range) was 59.97 years (22–88) in the CO_2 group and 58.26 years (22–84) in the air group. Insertion time to the caecum was quicker in the CO_2 group at 7.29 minutes compared to 9.88 minutes in the air group (p = 0.0083). Withdrawal times however were not significantly different; 6.69 minutes (air) vs 7.29 minutes (CO_2). Caecal intubation rates were 94.4% and 100% in the air and CO_2 groups respectively (p = 0.012). Capnography measurements and sedation use was similar in both groups and not statistically significant. The level of discomfort (VAS 0–3) assessed by the nurse was 0.69 (air) and 0.39 (CO_2) (p = 0.0155) and by the patient 0.82 (air) and 0.46 (CO_2) (p = 0.0228). The level of abdominal bloating assessed by the patient was 0.97 (air) and

0.36 (CO_2) (p = 0.001). There were no complications in both arms.

Conclusions The use of CO_2 during colonoscopy was more efficacious than air allowing for a quicker insertion time and better caecal intubation rates. Patient discomfort and abdominal bloating were significantly less with CO_2 insufflation.

The importance of the gut microbiome in gastrointestinal mucositis

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Mucositis is a common side effect of chemotherapy which remains poorly understood. The microbiome, the extended genome of all microbial genes, is vital for host health, but can transform in response to pharmaceutical input. With the recent establishment of the Human Microbiome Project, the microbiome is likely to receive significant attention, therefore the aim of this study was to investigate the intestinal microbiome in the development of mucositis.

DA rats were assigned to groups (experimental/control). Experimental rats were treated with either 200 mg/kg irinotecan or 150 mg/kg single dose 5-FU and faecal samples collected. Sixteen patients experiencing chemotherapy-induced diarrhoea (CID) consented to participate in this study, with two healthy control volunteers. Faecal samples were collected from all participants. Using both qualitative microbiological techniques, and quantitative molecular techniques, the bacterial components of rat and human samples were analysed. Statistical analysis was performed using the Mann-Whitney U test with bonferroni correction.

Mucositis was observed histologically in rats receiving irinotecan and 5-FU. Severe diarrhoea was observed in rats receiving irinotecan, but not in rats receiving 5-FU. Changes were observed in the intestinal microbiome of both humans and rats receiving chemotherapy when compared with their respective controls. Increases in potential pathogens simultaneous with decreases in anaerobic components of the microbiome were observed in both rats and humans. *E. coli* increased after treatment with irinotecan (24–48 hours and 96 hours, $p < 0.05$), 5-FU (48 hours), and in patients experiencing CID (66%). Various anaerobic components decreased after treatment with irinotecan, 5-FU and in patients.

The intestinal microbiome is vital for host health. We have shown that chemotherapy transforms components of the intestinal microbiome, affecting intestinal growth and development, colonisation resistance, availability of otherwise inaccessible nutrients and metabolism, all resulting in the development of mucositis.

Too many patients are unaware of and unenthusiastic about bowel cancer screening

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Background Bowel cancer is the second most common cancer and also the second most common cause of cancer death in Australia. The National Bowel Screening Programme (NBSP) has been offering a faecal occult blood test (FOBT) to Australians turning 55 and 65 years of age between 1 May 2006 and 30 June 2008.

Aims and method Our aims were to assess the awareness and enthusiasm for bowel cancer screening, and to evaluate the effectiveness of campaigns promoting knowledge of bowel cancer among outpatients attending a regional gastroenterology clinic. A self-administered questionnaire consisting of 12 true/false items was used to assess patients' knowledge (Cronbach's $\alpha = 0.77$).

Results The survey participation rate was 76%. The 144 participants had a mean age of 58 years, 63% were females, 31% had a tertiary education, 41% had home internet, 29% had a positive family history and 5.6% had a history of bowel cancer. Only 28% were aware of the current NBSP and only 45% indicated that they would participate in bowel screening. Only 49% had heard of the existence of a FOBT. Among those older than 65 years, only 39% would participate in bowel screening and 43% had heard of the FOBT. In the knowledge test 47% of participants answered less than half of the questions correctly despite the true/false question format lending itself to overestimation of knowledge. The majority of respondents were unaware of: the high incidence of bowel cancer, the recommended age to begin bowel cancer screening, the rate of progression to bowel cancer, the fact that unexplained tiredness is a warning sign and the fact that smoking is a risk factor (64%, 80%, 79%, 58%, and 52% respectively). Most participants knew that rectal bleeding and change in bowel habit were warning signs (88%, and 78% respectively) but only half identified abdominal pain, and unexplained weight loss as warning symptoms. On average only 65% of participants knew that polyps are a risk factor and that polyps may progress to cancer. Linear regression analysis showed that younger participants and those with a personal or a family history of bowel cancer had more knowledge ($p = 0.014$, $p = 0.026$, and $p = 0.012$, respectively). Being male and having a family history of bowel cancer predicted willingness to participate in bowel screening ($p = 0.03$, $p = 0.02$, respectively).

Conclusion Knowledge and willingness to participate in screening was low despite government information campaigns. There was a lack of awareness and enthusiasm for the NBSP especially in participants over 65 year of age. Steps should be taken to improve community awareness and improve screening rates especially among the expanding older population.

Tumour necrosis factor alpha inhibitor for treatment of refractory coeliac disease

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Alternative treatment options were explored for a patient with refractory coeliac disease type I after failure with conventional therapy of a gluten free diet and therapy of corticosteroids and azathioprine.

A patient was diagnosed with coeliac disease over 10 years ago after investigation for diarrhea, weight loss and iron deficiency. Endoscopic small bowel biopsies showed patchy villous atrophy. Coeliac antibodies were positive and genetic typing was consistent. Despite adherence with a gluten free diet, symptoms were refractory, anti-tissue transglutaminase antibodies levels rose to 100 and repeat endoscopies showed progression to marked villous atrophy.

After initial failure with a gluten free diet, management was directed at alternative agents with corticosteroids and azathioprine being used. Only limited clinical response and endoscopic improvement was seen. Flow cytometry has also shown the evolution of a population of T cells with the abnormal immunophenotype CD3+4–/5–/8+/103+ not seen previously, however TCR gene rearrangements were not monoclonal. MRI enterography and capsule video enterography has not shown evidence of lymphoma.

Literature reviews have recently shown clinical and histological responses with tumour necrosis factor alpha inhibitor, Infliximab as single induction dose and maintenance infusions. There has been persistent failure with the conventional therapies and significant deterioration

clinically with diarrhea, weight loss and evidence of malabsorption and complications of osteoporosis. Exclusion of other causes has been extensively carried out.

Azathioprine has been continued and Infliximab at a dose of 5 mg/kg as a single induction dose has been given with clinical improvement reported and some improvement in the villous atrophy. A regular maintenance infusion has been commenced to seek clinical and histological remission.

Upper gastrointestinal haemorrhage in Newcastle, NSW, Australia

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The epidemiology of Upper Gastrointestinal Haemorrhage (UGIH) in Australia is poorly understood. To address this question we collected data on all patients admitted to John Hunter Hospital (JHH) with an UGIH between August 2004 and December 2008. Variables included age, gender, co-morbidities and medications, Rockall score, and time to first endoscopy. Outcomes of interest included aetiology, treatment, and patient outcome. Variceal and non-variceal bleeds were analysed separately. The data was analysed using SAS statistical software.

Patients were managed by Gastroenterologist according to their usual practice. There were 827 bleeds (61% male) with a mean age of 66 years. Causes of non-variceal bleeds (85%) included ulcers 261 (32%); Mallory Weiss tear 84 (10%); oesophagitis 56 (6.8%) and malignancy 29 (3.5%). Varices were more common in males. Most (92.6%) of patients had one or more morbidity; 38% of patients presented with haemodynamic instability and almost half (46.8%) had an initial Rockall score of 4 or more. Overall mortality was 4.1% (4.8% in the variceal and 4.0% in the non-variceal group). Only 1.8% of patients had surgery. Overall 2 out of 5 patients were not transfused and of those transfused fewer than 5% had more than 6 units of blood.

Patients presenting with UGIH are overall elderly with significant comorbidities. Our mortality and referral to surgery is lower than in previously published international data.

Use of Fibroscan in an Australian tertiary referral centre

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Objectives Fibroscan is a new non-invasive method of predicting liver fibrosis via liver stiffness measurement (LSM). While it is commonly used in Europe to stage liver disease, its use in clinical practice in Australia has not been reported. The Aim of this study is to describe the first and largest Australian experience of Fibroscan in an unselected population of patients with known or suspected liver disease.

Methods A retrospective audit of all patients who underwent LSM from August 2008-May 2009. Data collected include patient demographics, liver disease characteristics, and Fibroscan indications and parameters. A LSM (in KPa) was considered valid when the interquartile range/median ratio was ≤0.3. All data in liver disease cohorts are presented as median values.

Results A total of 1306 Fibroscan procedures were performed over the 10 months on 1219 patients. The majority of referrals were from hepatologists/gastroenterologists (77%) but also other physicians (23%). The median age was 52 yrs (range 19–89) with 62% being men. The indications were HCV (47%), HBV (20%), NASH (10%), HIV (7%), ETOH (6%) and others (10%). Valid readings were obtained in more than 95% of Fibroscan procedures and 94.6% had a reading success rate of 60% or more. The mean duration of the procedure was 3.6 minutes. In the 491 patients with HCV monoinfection, LSM was 6.9 (IQR 5.3–11.1) with 95 (19%) having LSM readings in the cirrhotic range (≥13Kpa). A total of 208 patients had HBV monoinfection; LSM was 5.3 (IQR 4.5–7.05) with 18 (8.7%) having LSM in the cirrhotic range. Thirteen patients were coinfected with HCV and HBV; LSM was 7 (IQR 5.1–11.5) with 4 (30%) having LSM the cirrhotic range. The coinfected group had a higher LSM when compared to HBV monoinfection ($P = 0.02$) but not HCV monoinfection. In the 57 patients with HCV-HIV coinfection, LSM was 6.6 (IQR 5.4–9.6). LSM was similar in those with HCV-HIV coinfection compared to those with HCV monoinfection ($P = 0.9$). LSM in the 19 patients coinfected with HBV and HIV was 6.4 (IQR 4.8–12.1); this was no different to patients with HBV monoinfection ($P = 0.17$).

Conclusion Fibroscan is a quick and reliable noninvasive technique that can be applied successfully in the vast majority of patients to estimate liver fibrosis. The commonest indication for Fibroscan is chronic hepatitis C consistent with the substantial data validating the technique in this condition. While this technique looks promising in the evaluation of patients with liver disease, further studies are needed to determine its impact on clinical management.