Methods The operation and technical performance of each system was assessed and compared with manufacturers' claims using the manufacturers' recommended sample collection tube loaded with haemoglobin (Hb)-spiked faecal samples or Hb in buffer.
Results All collection tubes and analysers were considered useable, although the BioMajesty was unnecessarily complex for a single analyte. The use of re-usable cuvettes by NS-PLUS, OC--SENSOR DIANA and BioMajesty increases the volume of water waste, but reduces plastic clinical waste. HM-JACKarc and NS--PLUS were the most analytically sensitive (accurately measures to the lowest concentration). Imprecision with NS-PLUS was inconsistent with manufacturers' claims; imprecision for OC-SENSOR DIANA and BioMajesty could not be compared directly with manufacturers' claims due to differences between mean concentrations of the samples. All analysers except BioMajesty demonstrated good linearity. Precision (variation of measurement) was good for HM-JACKarc and for OC-SENSOR DIANA within the manufacturers' recommended range. Automated or semi-automated dilution of highly concentrated samples was available with all analysers, except HM-JACKarc, which has a limited measurement range. The NS-PLUS and BioMajesty did not alert the user to a hook/prozone effect (erroneously low values at exceptionally high concentrations). Sample stability over a range of temperatures was similar to manufacturers' claims for all analysers and much improved from previous studies. Whilst fewer staff may be required for screening, they will need further laboratory training to process FIT samples.
Conclusion This evaluation provides essential information to guide the BCSP through the usual tendering procedure.

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Disclosure of Interest None Declared.

PWE-020 DIAGNOSING MICROSCOPIC COLITIS – IS COLONOSCOPY NECESSARY?

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10.1136/gutjnl-2014-307263.280

Introduction Microscopic colitis is a common cause of chronic diarrhoea, particularly in older people, and the incidence is increasing. As the endoscopic appearance is typically normal, diagnosis of the two subtypes, collagenous and lymphocytic colitis, relies upon specific histology findings. When suspected, guidelines advise colonoscopy with full biopsy series due to reports of a patchy disease distribution, with false negative rates of up to 40% reported with flexible sigmoidoscopy.[1] However, more recent data has challenged this assumption, leaving considerable uncertainty.[2] We report one of the largest consecutive case series to date, examining whether flexible sigmoidoscopy alone is sufficient.
Methods A retrospective review of all cases of microscopic colitis diagnosed at colonoscopy over a 12-year period (2001–2013) at our hospital was performed. Only colonoscopies with both right (proximal to splenic flexure) and left sided colonic biopsies were included. The diagnostic criteria for microscopic colitis were lymphocytic infiltration in the lamina propria and either >20 intraepithelial lymphocytes per 100 epithelial cells (lymphocytic colitis) or a collagenous layer >10 mm (collagenous colitis). The primary aim was to assess the proportion of patients in which microscopic colitis could be diagnosed on left sided biopsies alone.
Results 84 patients were included in the study. 58 (69.0%) were female with a median age of 62 years. 44 (52.4%) had collagenous colitis and 40 (47.6%) lymphocytic colitis. 76 (90.5%) had features of microscopic colitis on both right and left sided biopsies, 7 (8.3%) right side only and 1 (1.2%) left side only. Hence a diagnosis of microscopic colitis could be made in 77 (91.7%) on left sided biopsies alone. Age, sex and histopathological subtype did not significantly alter the sensitivity of left sided biopsies.
Conclusion Flexible sigmoidoscopy would have correctly diagnosed microscopic colitis in a very high proportion of patients (92%). Given that flexible sigmoidoscopy is less expensive, better tolerated, and can be combined with CT scanning to exclude a proximal malignancy, this may have important implications for the investigation of non-bloody diarrhoea.

Abstract PWE-020 Table 1 Patient demographics and histopathological findings

	Collagenous colitis	Lymphocytic colitis
n	44	40
Median age (yrs)	61	62.5
Female	36 (81.8%)	22 (55.0%)
Left sided biopsies diagnostic	41 (93.2%)	36 (90.0%)

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Disclosure of Interest None Declared.

PWE-021 MTORC1 MEDIATED TRANSLATIONAL ELONGATION IS LIMITING FOR INTESTINAL TUMOUR INITIATION AND GROWTH

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10.1136/gutjnl-2014-307263.281

Introduction The loss of Apc, causing Wnt-mediated epithelial proliferation, is an early event in colorectal cancer (CRC) development. This hyperproliferative state requires signalling though the mTOR pathway, with the current paradigm suggesting that upregulation of translation initiation via phosphorylation of 4EBP1 is crucial. This model predicts that the mTOR inhibitor rapamycin, which does not efficiently inhibit 4EBP1 function, would be ineffective in limiting development and progression of intestinal adenomas.
Methods The inducible *in vivo* mouse models Lgr5Cre^{ER} and VillinCre^{ER} were used to selectively flox genes from intestinal stem cells and crypts respectively. mTOR complex 1 signalling was inhibited in Apc$^{fl/fl}$ mice either by rapamycin treatment or

co-floxing the mTORC1 essential component Raptor. Translational status was assessed by sucrose gradient ultracentrifugation of intestinal epithelial extract from these mice and ^{35}S methionine incorporation and harringtonine chase assays on organoid cultures. The role of downstream mTORC1 effectors was established by assessing the intestinal regeneration following IR irradiation of $4EBP1/2^{DKO}$, $S6K1/2^{DKO}$, $rpS6^{mut}$ and $eEF2k^{-/-}$ mice. Survival studies for $Apc^{fl/fl}$ mice treated with rapamycin were performed both prior to, and on development of, symptoms

Results mTORC1 activity is absolutely required for the proliferation of Apc deficient, but not wild type, intestinal crypts. Surprisingly, although protein synthesis is increased in $Apc^{fl/fl}$ crypts, it is translation elongation and not initiation that is the rate limiting step. Mechanistically, the inhibition of eukaryotic elongation factor (eEF2) kinase, to increase eEF2 activity downstream of mTORC1 and S6K is required for Wnt-mediated proliferation after IR irradiation. Treatment of established $Apc^{fl/fl}$ adenomas with rapamycin (which inhibits the mTORC1-S6K-eEF2k-eEF2 axis) arrests tumour growth and prolongs life. Furthermore, rapamycin treatment of mice immediately following homozygous Apc loss prevents the onset of symptoms.

Conclusion These data show that intestinal adenoma formation and growth requires an mTOR mediated increase in translation elongation. Treatment of patients at high risk of developing CRC, such as those with Familial Adenomatous Polyposis, with Rapalogs may therefore be of therapeutic value.

Disclosure of Interest None Declared.

PWE-022 PATIENT ACCEPTABILITY OF A NOVEL, NON-INVASIVE METHOD OF COLONIC SAMPLING FOR BIOMARKER ANALYSIS

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10.1136/gutjnl-2014-307263.282

Introduction Biomarker analysis is commonly used for the diagnosis of those presenting with colorectal symptoms and monitoring of inflammatory bowel disease (IBD), but the acceptability of stool sampling is poor. It is proposed that material rich in the colonic mucocellular layer is deposited on the anal surface post-defaecation and can be sampled for biomarker analysis. Our aim was to develop a novel, non-invasive method of material collection post-defaecation and assess patient acceptability.

Methods Patients with IBD (active cases and those in remission), irritable bowel syndrome (IBS) and a group of healthy volunteers were recruited. Participants were instructed to collect material from the surface of the anus immediately post-defaecation using a specially designed swab covered with flocked nylon (designed by DiagNodus Ltd). The collection process and preparation of samples was performed by patients at home using a specially designed kit. Samples were mailed back, ready for cytological and immunochemical analysis. Patients were provided with kits and asked to collect and return samples at predefined time-points. Patients completed a simple questionnaire to evaluate: (a) procedure convenience/acceptability, (b) ease of sample collection, (c) adequacy of time required for sampling and (d) overall impression each using a 5-point rating scale (1=poor to 5=good).

Results 112 patients were recruited comprising of 60 patients with active IBD, 14 patients with IBD in remission, 31 patients with IBS and 7 healthy volunteers. Collected samples were returned by 97 (86.6%) study participants (88.3% of patients with active IBD, 78.6% of patients with IBD in remission, 87.1% of patients with IBS and 100% of healthy volunteers). Completed questionnaires were returned by 92 trial participants (94.8% of those providing samples). The mean and standard deviation (SD) of participant responses is provided in the table below.

Sampling was not associated with discomfort or harm. The material obtained proved suitable for both cytological assessment and protein biomarker estimation.

Conclusion Material from the colonic mucocellular layer deposited in the anal area following defaecation is readily collectable using our specially designed kit and can provide material for both cytological assessment and biomarker quantification. This simple, reliable process is well tolerated and convenient as patients can provide samples from the comfort of their own home. This new technique warrants further study in different patient groups.

Disclosure of Interest V. Chhaya: None Declared, A. Poullis: None Declared, T. Bandaletova Shareholder of: DiagNodus Ltd, Conflict with: Founder of DiagNodus Ltd, A. Loktionov Shareholder of: DiagNodus Ltd, Conflict with: Founder of DiagNodus Ltd.

Abstract PWE-022 Table 1

	Mean	SD
Convenience/Acceptability	4.57	0.497
Sampling ease	4.54	0.595
Adequacy of time required for sampling	4.53	0.575
Overall impression	4.57	0.553

PWE-023 IS IT WORTH CHASING INCIDENTAL COLONIC HOT SPOTS ON ROUTINE PET CT SCANS?

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10.1136/gutjnl-2014-307263.283

Introduction Positron emission tomography (PET) measures metabolic changes at a cellular level enabling detection of early stage disease. Incidental 2-deoxy-[^{18F}F]fluoro-2-D-glucose (FDG) colonic uptake is detected in 1.3–3% of patients with up to a third resulting in false positive results.[1] Follow-up endoscopy is recommended to further distinguish these FDG avid lesions.[2] Cancer detection rates of 7.8–18.9% have been quoted in various studies.[1,3] Our aim was to evaluate colonic FDG avid lesions on PET by endoscopy.

Methods An analysis of prospectively collected database of all patients (n = 1564) who had PET for various malignancy between January 2011 to September 2013 was performed.

Results Fifty-nine (3.77%) patients had focal colonic FDG uptake and 45 (2.87%) patients went on to have colonoscopy.

Indications for PET CT for those undergoing endoscopy was lung carcinoma (22), gastrointestinal carcinoma (10), laryngeal carcinoma (7) and lymphoma (6).

Median age was 64 with a male preponderance (2.5:1)

Location on PET CT was categorised to sigmoid (23), rectal (9), anorectal (4), caecal (3), hepatic flexure (2), transverse (1), splenic flexure (1), ascending (1) and descending (1).

Findings on endoscopy ranged from polyps (22), normal (9), diverticulosis (8), sigmoid cancer (4), caecal cancer (1) and colitis (1).