therapy has failed, yet there is little outcome data. We describe our experience of outcome following endoscopic therapy where both radiological and surgical interventions are readily available.

Methods A retrospective observational study of all patients undergoing therapeutic endoscopy as primary treatment for NV-UGIB at the John Radcliffe Hospital, Oxford, was performed. All 180 patients eligible over a 2-year period (January 2009 to December 2010) were included. The main outcome measures were failure of primary endoscopy, defined as continuing bleeding or rebleeding requiring further intervention or causing death, and definitive haemostasis rate after all intervention (repeat endoscopy, radiological embolisation or surgery).

Results 180 patients underwent therapeutic endoscopy; median age 75 years, 114 male (63.3%). 128 (71.1%) had peptic ulcer disease. Haemostasis was achieved at endoscopy in 165 (91.7%). In four patients endoscopic therapy was not attempted due to inaccessibility of the lesion. There was failure of primary therapeutic endoscopy in 40 (22.2%), with continuing bleeding in 13 and rebleeding in 27. A second intervention was undertaken in 37; embolisation in 21, repeat endoscopy in 14 and surgery in 2. 13 required three or more interventions. Definitive haemostasis was achieved in 18/25 (72%) of patients undergoing embolisation and 8/8 (100%) of patients undergoing surgery. All cause mortality was 20% in the embolisation group, with one patient dying from ischaemic complications. There were no deaths in the surgical group. Overall, definitive haemostasis was achieved in 174 patients (96.7%) with all cause 30-day mortality 10% and bleeding-related mortality 3.3%. Failure of primary endoscopy was associated with an increased risk in all cause mortality (RR 2.80, CI 1.18 to 6.62, $p=0.02$).

Conclusion The failure rate of therapeutic endoscopy for NV-UGIB was comparable with the published literature. The combination of endoscopic, radiological and surgical therapy achieved definitive haemostasis in a high proportion (96.7%). When endoscopic therapy failed, interventional radiology was an effective salvage modality in the majority of cases, avoiding the need for surgery. Failure of primary endoscopic therapy was associated with all cause mortality.

Competing interests None declared.

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PWE-213 COMPARISON OF COLONOSCOPY QUALITY INDICATORS BETWEEN SURGEONS, PHYSICIANS AND NURSE ENDOSCOPISTS IN THE NHS BOWEL CANCER SCREENING PROGRAMME: ANALYSIS OF THE NATIONAL DATABASE

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Introduction Screening colonoscopists in the NHS Bowel Cancer Screening Programme (BCSP) are predominantly surgeons, physicians or nurse endoscopists. There are a small number from other backgrounds such as general practice. All are required to be screening-accredited, attain the same standards prior to commencing colonoscopy in the programme (including performance of at least 1000 colonoscopies) and undergo the same performance

audits. This study examines whether there are any differences in colonoscopy quality indicators (CQI) among colonoscopists from these different backgrounds.

Methods The following CQI were calculated for all colonoscopists in the BCSP based on all index screening colonoscopies performed between August 2006 and August 2009: adenoma detection rate (ADR), polyp detection rate (PDR), mean number of adenomas per patient (MAP), mean negative complete colonoscopy withdrawal time (nc-CWT), caecal intubation rate (CIR), rectal retroversion rate (RRR), polyp retrieval rate (PRR), percentage of patients with no, minimal or mild discomfort and percentage of procedures performed with no intravenous sedation. Colonoscopists were classified according to their background. As only one colonoscopist was from a general practice background, this group was not included from subsequent analyses. ANOVA was used to compare the mean values for each of the CQI for each speciality.

Results Of 148 colonoscopists, 114 were physicians, 24 were surgeons and 10 were nurse endoscopists. In the study period, 36 460 colonoscopies were performed. The mean ADR for surgeons, physicians and nurse endoscopists were 46.7%, 46.6% and 44.2% respectively. The mean CIR rates were 95.3%, 95.3% and 94.7% respectively. These values were not significantly different ($p=0.570$, $p=0.839$). Similarly, no significant differences were seen in comparison of any of the other CQI or performance indicators (PDR, MAP, nc-CWT, RRR, PRR or patient comfort). The proportion of procedures performed without sedation by surgeons, physicians and nurse endoscopists were 10.4%, 13.8% and 27.5% respectively ($p=0.002$).

Conclusion This study demonstrates that standards of colonoscopy as assessed by eight colonoscopy quality indicators and measures of performance are similar for surgeons, physicians and nurse endoscopists. The difference in percentage of procedures performed without sedation may reflect differing attitudes to sedation and warrants further investigation. These data support the accreditation process for screening colonoscopists by demonstrating that all accredited colonoscopists perform to a high standard irrespective of speciality.

Competing interests None declared.

PWE-214 ENDOSCOPIC MUCOSAL RESECTION FOR EARLY NEOPLASIA IN BARRETT'S EPITHELIUM IN PATIENTS ON ANTICOAGULATION USING WARFARIN: IS IT SAFE?

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Introduction Endoscopic mucosal resection (EMR) has become an established treatment modality in the management of patients with high grade dysplastic lesions and intramucosal cancer in Barrett oesophagus. The mucosal defect caused by the endoscopic resection usually takes several weeks to heal. There is no data whether this procedure is also safe for patients requiring anticoagulation. The aim of the study was to investigate the risk of acute and delayed bleeding in patients on anticoagulation undergoing EMR for treatment of early neoplasia in Barrett oesophagus. We compared the complication rate of EMR in patients taking warfarin as anticoagulants with that of a control group.

Methods Warfarin was stopped 5 days before the planned EMR and restarted on the evening of the procedure day. Patients with high risk conditions such as recent pulmonary thromboemboli received bridging with low molecular weight heparin. All EMRs were performed when the INR was <1.5.

Results 34 EMRs were performed in nine patients requiring anti-coagulation. 8 were on warfarin due to atrial fibrillation, one took warfarin after pulmonary embolism. One patient on warfarin was readmitted 10 days after EMR with haematemesis, melaena and an drop in haemoglobin >5 g/dl caused by bleeding from an EMR resection ulcer; the bleeding had settled spontaneously at the time of endoscopy. Out of 138 EMRs in 35 controls, five acute bleeding events occurred during EMR which required treatment by clipping, coagulation grasper or heater probe. No delayed bleeding event occurred in the control group. The maximal diameter of the resected specimen did not differ between anticoagulated patients and controls (median 17 mm; 25%>75% percentile: 15–18 mm vs 17 mm; 25%>75% percentile: 15–20 mm; $p=0.68$). No perforations were observed in either groups. The number of bleeding events did not differ between groups ($p=0.85$), neither for acute ($p=0.60$) or delayed bleeding ($p=0.46$).

Conclusion EMR of early oesophageal neoplasia can be safely performed in patients requiring anticoagulation when warfarin is discontinued 5 days before the endoscopic intervention and reinstituted on the evening of the procedure day.

Competing interests None declared.

PWE-215 NUMERICAL ANALYSIS OF COLOUR FLUORESCENCE RATIO AND CONTRAST USING VIDEO AUTOFLUORESCENCE ENDOSCOPY ACCURATELY IDENTIFIES HIGH GRADE DYSPLASIA OR CANCER IN PATIENTS WITH BARRETT'S OESOPHAGUS

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Introduction Autofluorescence endoscopy (AFE) is a novel technique that identifies early neoplasia in Barrett's oesophagus (BE) by highlighting differences in tissue autofluorescence (AF). It has high sensitivity but is associated with false positive rates up to 80%. We aimed to develop numerical measures of AF to reduce the false positive rates of AFE.

Methods Images of AFE lesions in patients with BE were prospectively collected. Blinded anonymised images were de-gamma corrected and average grayscale values in the red, green and blue channels of the abnormal and background normal area were quantified. The autofluorescence intensity (ratio of average red to green channel greyscale value of lesion compared to background), colour contrast index (between lesion and background), hue, saturation and lightness (of the lesion) were calculated. A decision tree based on the training set was developed with the J48 algorithm in WEKA3.2.4, using a 10-fold cross validation strategy. The performance of the model developed was assessed on an independently collected test dataset.

Results There were 82 images (37 high grade dysplasia/cancer) in the training set and 164 images (51 high grade dysplasia/cancer) in the test set. The decision tree classifier developed utilised only autofluorescence intensity and colour contrast index and had a sensitivity of 97%, specificity of 77%, and negative predictive value of 98% in detecting high grade dysplasia/cancer in the independent test set. The false positive rate of AFE was reduced from 70% to 16%.

Conclusion Numerical analysis of colour fluorescence and contrast is a reliable, objective and accurate method of reducing the false positive rate of AFE and can be easily incorporated into real time endoscopy.

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PWE-216 DIAGNOSTIC ACCURACY FOR DETECTION OF DYSPLASIA IN BARRETT'S OESOPHAGUS USING NARROW BAND IMAGING WITH MAGNIFICATION IMPROVES AFTER A SHORT TRAINING SESSION IN THOSE WITH PRIOR EXPOSURE TO NBI BUT NOT IN NOVICES

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Introduction Narrow band imaging (NBI) with magnification (NBI-zoom) has been shown to be highly sensitive and specific in identifying dysplasia in Barrett's oesophagus (BO). These studies have been done using experts and there is limited data on how these techniques can be taught. Recently studies have demonstrated that identifying adenomatous pit patterns in colonic polyps using NBI can be easily taught by short training sessions. The aim of this study was to prospectively evaluate the utility of a short training session on the ability of endoscopists to identify dysplastic patterns in NBI-zoom images from patients with BO.

Methods A prospective observational study was done on 28 endoscopists (10 novices, 10 with prior exposure to NBI and 10 experienced in the use of NBI-zoom) who attended a national level symposium on BO. A pre-test with 15 NBI-zoom images was followed by a 15 min training session where the endoscopic criteria for making a diagnosis of dysplasia on NBI-zoom images were described and demonstrated. The post-test had 25 NBI-zoom images. Images were projected using a high definition projector system and participants were given 45 s per image to make a diagnosis. Overall accuracy in detecting dysplasia was calculated and the inter-observer reliability of the groups was determined using bias corrected κ statistics.

Results Abstract PWE-216 table 1 provides the accuracy of classification of mucosal and vascular patterns and identifying the presence of dysplasia in the three groups of endoscopists. Significant improvement was noted after the training session in the group with prior NBI exposure but not in novices. The κ value for inter-observer reliability significantly ($p=0.01$) improved among those with prior NBI exposure from 0.238 (0.082–0.453) to 0.650 (0.421–0.836) after the training sessions but not in novices ($p=0.4$) 0.280 (0.084–0.532) to 0.374 (0.251–0.517) or experienced endoscopists ($p=0.08$) 0.505 (0.273–0.708) to 0.779 (0.552–0.929).

Abstract PWE-216 Table 1

	Novice		Prior exposure		Experienced	
	% right pre NBI training	% right post NBI training	% right pre NBI training	% right post NBI training	% right pre NBI training	% right post NBI training
Mucosal pattern	61.3	68	64	78	79.2	89.5
Vascular pattern	55.3	63.6	60.7	84	80.8	89
Presence of dysplasia	60	67.2	66	89	85.8	93.5

Conclusion A short didactic teaching session can achieve high accuracy and good interobserver agreement in identifying dysplastic patterns in NBI-zoom images from BO in those with some prior NBI experience but not in novices.

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