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PWE-186 **ISCAN IN THE EVALUATION OF SMALL COLONIC POLYPS: OUTCOMES, LEARNING CURVE FROM A LARGE PROSPECTIVE SERIES**

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Introduction Indigocarmine (IC) and narrow-band imaging have been shown to be effective in the in vivo diagnosis of small colonic polyps. The learning curve for achieving high level of accuracy with a new technology for real-time diagnosis of small colonic polyps has not been determined.

Methods We aimed to assess the learning curve of a novel electronic in vivo diagnosis technology (Pentax iScan) for an expert endoscopist. Patients presenting for screening colonoscopy through the UK Bowel Cancer Screening Programme were prospectively recruited. All colonoscopies were performed by a single expert endoscopist, with extensive experience in in vivo diagnosis, using Pentax EC-3890Li 1.2 Megapixel HD colonoscopes and EPKi processor. Polyps <10 mm in size were assessed sequentially using three modalities (1) White light HD endoscopy (WL), (2) Pentax iScan surface and tone enhancement, (3) IC chromoendoscopy. Optical magnification was not used. Predicted histology (non-neoplastic, adenoma, cancer) was recorded for each modality and compared to the final histopathological diagnosis. Results were analysed for sensitivity and specificity for neoplasia, and overall accuracy. To assess any learning effect results were analysed in three sets of 100 consecutive polyps.

Results A total of 309 polyps were eligible for inclusion in the study. Mean polyp diameter was 4.1 mm, median 3 mm. 133 polyps were in the proximal colon and 176 in the distal colon. 109 polyps were non-neoplastic, 199 were adenomatous and one contained adenocarcinoma. Sensitivity and overall accuracy improved significantly for all three imaging modalities in the 3rd set of polyps as compared to sets 1 and 2 ($p < 0.05$). In Set 3 overall accuracies of 92.7%, 93.6% and 93.6% were achieved with WL, iScan and IC respectively. There were no significant differences in overall accuracy between the three modalities in Set 3. Negative predictive values for adenomatous histology of recto-sigmoid polyps ≤ 5 mm for the entire study were 96.5%, 93.4% and 98.3% for WL, iScan and IC respectively.

Abstract PWE-186 Table 1

| | WL | iScan | IC |
|-------------------------------|-------|-------|-------|
| Set 1 (Polyps 1–100) | | | |
| Sensitivity | 0.788 | 0.868 | 0.904 |
| Specificity | 0.708 | 0.766 | 0.729 |
| Accuracy | 0.750 | 0.820 | 0.820 |
| Set 2 (Polyps 101–200) | | | |
| Sensitivity | 0.866 | 0.851 | 0.881 |
| Specificity | 0.758 | 0.758 | 0.788 |
| Accuracy | 0.830 | 0.820 | 0.850 |
| Set 3 (Polyps 201–309) | | | |
| Sensitivity | 0.964 | 0.988 | 0.976 |
| Specificity | 0.808 | 0.769 | 0.808 |
| Accuracy | 0.927 | 0.936 | 0.936 |

Conclusion (1) Even in expert hands there is a significant learning curve for using a new technology for the in vivo diagnosis of small colonic polyps, with improvement in performance over the first 200 polyps assessed. (2) Excellent results can be achieved once the new technology has been mastered. (3) This is the first report of results achieved with high-definition white light endoscopy which are comparable with electronic chromoendoscopy and IC chromoendoscopy.

Competing interests None declared.

PWE-187 **COLONIC BIOPSIES TO DETECT MICROSCOPIC COLITIS IN PATIENTS WITH DIARRHOEA AND "NORMAL" COLONOSCOPY: WORTH THE EFFORT?**

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Introduction Patients investigated for diarrhoea often have macroscopically normal colonoscopies. Biopsies are, however, required in order to diagnose microscopic colitis (MC). Obtaining colonoscopic biopsies for persistent diarrhoea is an auditable JAG standard. The aim of this study, carried out in a single large NHS Teaching Hospitals Trust was (1) To measure the incidence of MC in patients with diarrhoea who had a "normal" colonoscopy. (2) To examine whether the discipline of the colonoscopist affected whether biopsies were taken in this situation or not. (3) To assess which biopsy protocols were being used.

Methods An analysis was performed of all colonoscopies with the indication of diarrhoea, with normal findings, undertaken in 2010. Interrogation of the endoscopy recording system (ERS), looked at endoscopist discipline, if biopsies were taken, biopsy sites and histology results.

Results A total of 4753 colonoscopy records were examined, of which 750 (15.8%) were performed for diarrhoea. 313/750 (41.7%) were described as being entirely normal. Of the 313 "normal" colonoscopies, 132 (42.2%) were performed by physicians; 40 (12.8%) surgeons; 124 (39.6%) nurses; 17 (5.4%) not specified. 294 (93.9%) colonoscopies had biopsies taken and MC was confirmed histologically in 14 (4.8%). Among the different professional groups, there was variation in the frequency of obtaining biopsy specimens: physicians 126/132 (95.5%), surgeons 35/40 (87.5%) and nurses 118/124 (95.2%). The difference between physicians and surgeons was not statistically significant ($\chi^2 = 3.55$, $p = 0.06$). Positive biopsy for MC was similar between the different groups: physicians 5 (3.8%), surgeons 2 (5.0%), nurses 5 (4.0%) ($p = \text{NS}$). Of the patients who did have biopsies performed, 274/294, (93%) had both right and left colon sampled.

Conclusion The vast majority (93.9%) of patients presenting with diarrhoea and a normal colonoscopy in our unit are having colonic biopsies performed to exclude a diagnosis of microscopic colitis. The histology positivity rate was 5%, comparable to similar published series. A majority of all professional colonoscopists perform colonic biopsies appropriately in the setting of diarrhoea and normal colonoscopy. There is variability, but this is not statistically significant.

Competing interests None declared.

PWE-188 **USING A "CONVERSION FACTOR" TO ESTIMATE ADENOMA DETECTION RATE**

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Introduction Adenoma detection rate (ADR) is the recommended surrogate marker for a thorough colonoscopic examination. Collecting histology makes its calculation arduous so polyp detection rate (PDR) is often used instead. It has been proposed that the ADR:PDR ratio can be used as a “conversion factor” to accurately estimate ADR. Work from the Bowel Cancer Screening Programme (BCSP) has shown that adenomas are more prevalent in this population suggesting the ratio may be different. We aimed to assess the feasibility of using a “conversion factor” to estimate ADR from PDR in different UK populations.

Methods Colonoscopy performance data from the symptomatic services were collected over a 3-month period from 12 units in the northern region of England. Data from all procedures performed by BCSP accredited colonoscopists were excluded from this group. National colonoscopy performance data were extracted from the BCSP database from a 12-month period. Colonoscopists detecting polyps in ≥ 10 patients were included. Data collected included colonoscopist, PDR and ADR. The conversion factor was calculated separately for each group. The ADR:PDR ratio was calculated at the level of the colonoscopist and the group mean used as the conversion factor. The estimated ADR was calculated using: PDR \times conversion factor. The relationship between the actual and estimated ADR was evaluated using Pearson's correlation coefficient.

Results In the symptomatic services 3219 colonoscopies were performed by 55 colonoscopists. In the BCSP 31017 procedures were performed by 147 colonoscopists. The PDR and ADR respectively for the symptomatic group were 30.7%, IQR 24.8–40.0 and 18.0%, IQR 14.0–24.0, and for the BCSP group were 59.3%, IQR 53.8–65.0 and 46.0%, IQR 43.0–51.3. The ADR:PDR ratio in the symptomatic and BCSP groups were 0.59 (IQR 0.47–0.69) and 0.78 (IQR 0.74–0.81). The correlation between the estimated and actual ADR was 0.68 ($p < 0.001$) and 0.83 ($p < 0.001$) for the symptomatic and BCSP groups respectively.

Conclusion We demonstrate using estimated ADR, when calculation of ADR is not feasible, may be an acceptable marker of quality in colonoscopy. The difference in the conversion factors between the groups studied here is likely to be due to the selected population colonoscoped within the BCSP but suggests it will need to be adjusted for different patient populations. Studies to further validate this concept and ensure that conversion factors remain consistent over time are ongoing.

Competing interests None declared.

PWE-189 ACHIEVING HIGH QUALITY COLONOSCOPY: USING GRAPHICAL REPRESENTATION TO MEASURE PERFORMANCE AND RESET STANDARDS

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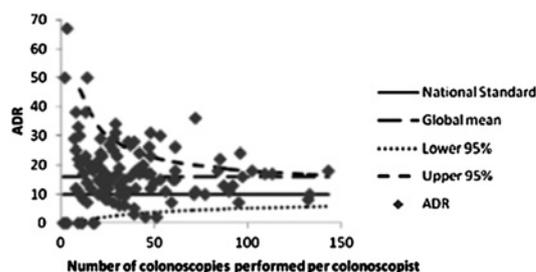
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Introduction The aim of colonoscopy is to examine the colon completely and meticulously looking for malignant and pre-malignant

lesions (adenomas). The measure for completeness is the caecal intubation rate (CIR) and for thoroughness the adenoma detection rate (ADR). National Standards (NS) are $\geq 90\%$ and $\geq 10\%$ respectively.¹ Variability in CIR, ADR and thusly quality, have been shown but comparison between individuals and units is difficult.^{2,3} We aimed to use graphical representation to assess colonoscopy performance in the North East of England.

Methods Data on colonoscopy performance and sedation use were collected over 3 months from 12 units. Colonoscopies performed by screening colonoscopists were included in the global CIR only. Funnel plots with upper and lower 95% confidence limits (CL) for CIR and ADR were created using the binomial probability distributions for inferences about a single proportion.

Results CIR was 92.5% (n=5720) and ADR 15.9% (n=4748). All units and 128 (99.2%) colonoscopists were above the lower limit for CIR. All units achieved the ADR standard with 10 above the upper limit. Ninety-nine (76.7%) colonoscopists were above 10%, 16 (12.4%) above the upper limit and 7 (5.4%) below the lower limit (Abstract PWE-189 figure 1). Median medication doses were: 2.2 mg midazolam, 29.4 mg pethidine, and 83.3 mg fentanyl. 15.1% of colonoscopies were unsedated. Complications were bleeding (0.10%) and perforation (0.02%). There was 1 death possibly related to bowel preparation.



Abstract PWE-189 Figure 1 Funnel plot showing each colonoscopist's ADR with respect to the NS. CLs calculated relative to the NS.

Conclusion Results indicate colonoscopies are performed safely and to a high standard. Funnel plots can highlight variability and areas for improvement. Analyses of ADR presented graphically around the global mean suggest that the NS should be reset at 15%.

Competing interests None declared.

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PWE-190 ENDOSCOPIC MUCOSAL RESECTION OF LARGE COLORECTAL POLYPS: OUTCOMES FROM A REGIONAL BOWEL CANCER SCREENING CENTRE

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Introduction Endoscopic mucosal resection (EMR) of colorectal polyps has been reported to be a safe and effective technique within