Participants noted it would take time to adjust to MNP being higher than PDR.

Participants were motivated by social comparison, particularly to expert groups. Participants responded negatively to statements ranking their performance nationally, preferring a visual comparison with an aspirational top quartile.

Expected performance is highlighted in blue, as amber elicited a fear response. Underperformance is in red and focussed attention on goals.

The BCI is programmed and emailed monthly from the National Endoscopy Database (NED). Participants noted monthly data may be variable and paid more attention to trends. The BCI was revised to emphasise a 4-month summary and plotted trend.

The BCI has a personalised action plan using targets for behaviours which influence detection, supported by information to improve knowledge. Participants believed that hyoscine butylbromide, withdrawal time, and turning the patient improved detection and were consistent with personal goals. Rectal retroversion is included in the BCI but few participants believed this improves detection.

Participants described positive experiences using nursing staff to prompt behaviours but spoke about complex social barriers to nurse empowerment. To overcome barriers, action plans encourage endoscopists to ask nursing staff to provide specific prompts.

Conclusions This process has resulted in an evidence and theory informed BCI (video), which is being tested in the NED Automated Performance Reports Improving Quality Outcomes Trial (APRIQOT) multicentre randomised control trial. NED APRIQOT is funded by the Health Foundation.

P19 STRUCTURE-FROM-MOTION ANALYSIS MAY GENERATE AN ACCURATE AUTOMATED BOWEL PREPARATION SCORE

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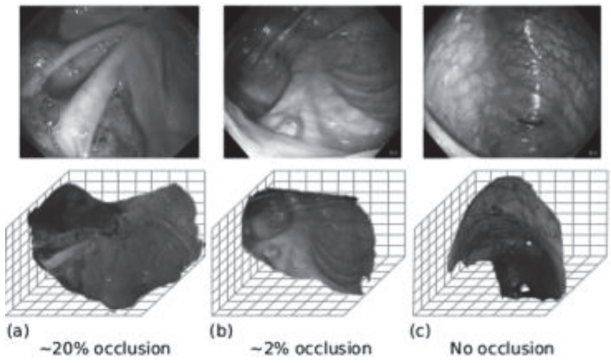
Introduction Structure-from-Motion (SfM) is a computer vision technique which allows us to estimate the 3D structure of a scene from a set of 2D images. Our aim was to use this to automatically identify quality of bowel preparation.

Methods We applied SfM to 5 colonoscopy sequences, composed of 150 to 300 consecutive images displaying caecum. We then refined the estimated 3D meshes by smoothing them and eliminating erroneous estimates arising at the edge of the reconstructed surfaces. These erroneous estimates were mainly due to a lack of visual redundancy, motion blur or illumination artefacts such as large specularities.

Results Figure 1 shows that SfM allows successful estimation of 3D structure of different caecum sections. Depressed and protruded areas could particularly facilitate visual analysis. Although SfM suffers from a scale ambiguity which prevents 3D measurements, it can provide different quality indicators such as an estimate of the percentage of colonic surface observed during a procedure. Here, we evaluated effectiveness of pre-operative bowel preparation by measuring the ratio of



Abstract P19 Figure 1

obscured or partially obscured area over the 3D surface reconstructed. Figure 1(b) and figure 1(c) correspond to clean bowel preparation with a percentage of obscured mucosa less than 2%. Figure 1(a) illustrates poor bowel preparation as approximately 20% of the observed colon section is obscured. For some images of the corresponding colonoscopy sequence, 35% of colon surface observed was obscured due to poor bowel preparation. Such a quality indicator would contribute to an objective assessment of colonoscopy examination reliability.

Conclusion This study demonstrates that 3D vision-based approaches can provide objective quality indicators in colonoscopy. More advanced approaches such as Simultaneous Localisation And Mapping (SLAM) could also be used to estimate both the 3D structure of the observed scene and the endoscope motion. SLAM could provide practitioners with enhanced visualisation in colonoscopy contributing to the development of advanced quality indicators.

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P20 IMPROVING BARRETT'S SURVEILLANCE IN A DGH – DEDICATED LISTS ARE FEASIBLE AND WORTHWHILE

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Introduction Significant deficiencies in the standard of surveillance endoscopies done for Barrett's oesophagus (BO) were identified in a retrospective audit in our DGH.

It is well recognised that BO progresses through a dysplasia-carcinoma sequence to oesophageal cancer. Studies have shown that up to 7.8% of oesophageal cancers are missed at previous endoscopy.[1] This highlights the importance of performing high quality endoscopies in order to detect changes an early stage when local potentially curative treatment is possible.

This study reviews compliance with BSG Barrett's guidelines[2] before and after introduction of dedicated Barrett's surveillance lists at our DGH.

Method Retrospective audit of endoscopies for all patients with BO in 2018 was performed. A new dedicated Barrett's surveillance list was introduced in March 2019 (single endoscopist, 2 experienced nurses, maximum 6 patients per list, timely follow up via virtual clinic for notes and histology

Abstract P20 Table 1

	2018	Dedicated Barrett's lists March-Aug 2019
Number of patients	136	44
Number of endoscopists	17	1
Known diagnosis of BO	64 (47%)	44 (100%)
Length of Barrett's segment	61 (45%)	10 (23%)
<2 cm	27 (20%)	16 (36%)
2–5 cm	47 (35%)	18 (41%)
>5 cm		
Use of Prague classification	122 (88%)	44 (100%)
Adherence to Seattle protocol	82 (66%)	41/41 (100%) – where required
Cases with dysplasia detected	8 (7%)	7 (16%)
Dysplasia confirmed by 2nd pathologist and discussed at MDM	2 (25%)	7 (100%)

review within a month) and direct access to MDT for any cases with dysplasia. The audit was repeated 6 months after the introduction of these dedicated lists.

Data collected from endoscopy reporting system included endoscopist performing procedure, patient characteristics, Barrett's segment (length and Prague Classification), and adherence to Seattle biopsy protocol. Histology was extracted from the pathology reporting system.

Results Results from the two study periods were collated and compared in the table below:

Conclusions This study highlights that dedicated Barrett's surveillance lists can be successfully implemented in DGHs and lead to a significant improvement in the quality of surveillance endoscopies performed. The use of a dedicated virtual clinic has facilitated timely communication to GP and patient regarding outcome and follow-up plan in line with BSG guidelines for future surveillance.

Key outcomes from the audit include the significant increase in dysplasia detection rate from 7% to 16%, and, for all cases where dysplasia was detected, dual reporting and discussion in the UGI MDTM.

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P21 ENDOSCOPY MISS RATES FOR UPPER GI CANCERS PRIOR TO IMPLEMENTATION OF UPDATED BSG QUALITY STANDARDS

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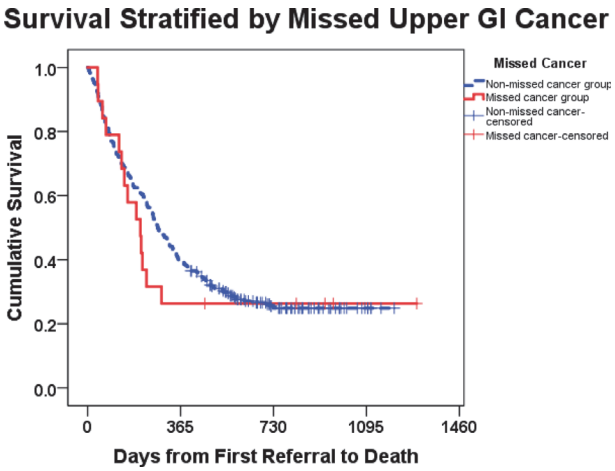
Introduction Upper GI cancers (oesophageal and gastric cancers) continue to carry a poor prognosis and efforts have been focused on achieving early diagnosis to improve outcomes. Post-endoscopy upper GI cancer rates are currently estimated at 11.3%.[1] This has motivated the BSG to release updated quality standards in 2017.[2] This study aimed to evaluate current endoscopy performance prior to implementing these standards.



Abstract P21 Figure 1 Kaplan-Meier analysis comparing patients with missed endoscopy against patients without missed endoscopy

Methods Upper GI cancer registry data was obtained for the period covering 1/1/2017 to 31/12/2018. Retrospective analyses of electronic patient records and endoscopy records were performed to augment the registry dataset. Missed cancer was defined as cancer not diagnosed by a previous endoscopy within 3 years of the diagnosis date. Statistical analyses were carried out with SPSS 23. Primary outcome was the missed cancer rate. Secondary outcomes include difference in cancer survival for patients with missed cancer and factors relating to missed cancer rate (eg. sedation, endoscopist experience, procedure tolerance, suboptimal views and photodocumentation).

Results 350 patients were diagnosed with upper GI cancers between 2017 and 2018. 27 patients did not meet inclusion criteria (12 did not undergo endoscopy for diagnosis and 15 were on a screening pathway eg. known Barrett's). The missed cancer rate was 19 out of 323 patients (5.9%). Patients with missed cancer had no difference in survival (figure 1) compared to the non-missed cancer group but there was a trend towards worse survival in the missed cancer cohort (median survival 207 vs 275 days, p=0.54). Within the missed cancer group, 13 cases (68%) were missed oesophageal cancers and 6 cases (32%) were missed gastric cancers. Suboptimal views were noted in 7 cases (37%), poor tolerance in 4 cases (21%) and 7 cases (37%) were non-sedated.

Conclusions The missed cancer rate was 5.9%. Patients with missed cancer may have worse survival and there remains room for improvement. We hope that the introduction of the updated BSG quality standards will drive improvement in endoscopy quality and reduce missed cancer rates in the future.

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