

Abstract P16 Table 1

KPI	Definition	Statement Accepted	Round Consensus Reached	Agree/ Neutral/ Disagree
<b>Polyp Detection Rate (PDR)</b>	Procedures where at least 1 polyp is detected, displayed as%.	PDR is an acceptable detection measure in colonoscopy in the absence of a link to histological polyp data. Procedure adjusted polypectomy rate may be used to account for variables which may affect polyp detection, such as the procedure indication and patient demographics.	2	95%/0%/5%
<b>Mean Number Polyps (MNP)</b>	Number of polyps detected, displayed as rate per 100 colonoscopies.	MNP detected is an acceptable detection measure in colonoscopy. Procedure adjusted polypectomy rate may be used to account for variables which may affect polyp detection, such as the procedure indication and patient demographics.	3	81%/14%/5%
<b>Proximal Polypectomy Rate (PPR)</b>	Procedure where at least 1 polyp is removed proximal to the splenic flexure.	PPR is an acceptable secondary measure to the primary KPI. Procedure adjusted polypectomy rate may be used to account for variables which may affect polyp detection, such as the procedure indication and patient demographics.	3	86%/9%/5%

polypectomy rate (PPR) was accepted as a secondary ‘*tool to improve right sided detection*’ and reduce ‘*gaming*’, despite concerns around contraindications to polypectomy.

**Conclusion** All adjusted KPI were accepted, MNP was selected for trial with robust data to model case-mix.

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#### SIERRA LEONE ENDOSCOPY, USING SOCIAL MEDIA TO ENGAGE WITH PATIENTS AND PHYSICIAN

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**Introduction** Sierra Leone is a resource poor country in Sub-Saharan Africa, medical services are rudimentary with no previous adult endoscopy services. Since 2016 our team of UK endoscopists and endoscopy nurses have developed a sustainable endoscopy service model in Freetown, through providing distance learning and in person training to local doctors and nurses, the team now provide upper GI endoscopy to international quality standards.

Access to mobile data and social media has increased in Sierra Leone, with mobile phone data access increasing from 29% of the population in 2012 to 88% of in 2016,<sup>1</sup> with Facebook taking 64% of national social media market share.<sup>2</sup> Social media and mobile interfaces offer an efficient communication method to patients and referring physicians, promoting available healthcare services and providing information to those in the most difficult to reach areas of the world.

We aimed to develop a social media campaign for our endoscopy services, to improve patient engagement during a clinical visit in November 2019.

**Method** We developed a Sierra Leone Endoscopy Facebook page providing information on endoscopy services, and a series of events promoting assessment clinics. Social media events were used to promote services at the end of November 2019, to coincide with a weeklong clinical visit and training from the UK team. These events were targeted at Facebook users in and around Freetown. We developed a google site providing more detailed information for patients on upper GI endoscopy, introducing the clinical team and the development of endoscopy in Sierra Leone.

**Results** The Facebook events were live from 19th October 2019 for one month, over this period events reached over

160 000 people in the Freetown area, with 1590 people interacting with the events online. Despite high online engagement in the week period from 18th – 22nd November 2019, three patients of the 12 undertaking GI endoscopy reported access to endoscopy prompted by social media engagement.

**Conclusion** Access to endoscopy was modestly improved with a targeted social media campaign, however the barriers to accessing healthcare and endoscopy in Sierra Leone remain very high. The Sierra Leone team continue to use the social media platform to provide information to patients and physicians, and expand to provide video information in both English and Krio.

#### REFERENCES

1. ‘Communications: Sierra Leone’, World Factbook, U.S. Central Intelligence Agency, February 2020.
2. <https://gs.statcounter.com/social-media-stats/all/sierra-leone>

P18

#### DEVELOPING A THEORY INFORMED BEHAVIOUR CHANGE INTERVENTION TO IMPROVE COLONIC POLYP DETECTION

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**Introduction** Colonoscopists with low polyp detection rates (PDR) have higher post colonoscopy colorectal cancer rates. Audit and feedback (A&F) interventions modestly improve performance in clinical contexts, but most interventions lack theoretical underpinnings so how they work is not understood. We aimed to develop a behaviour change intervention (BCI) giving endoscopists feedback to improve mean number of polyps (MNP) detected.

**Methods** An A&F literature review will inform a draft BCI: a report on endoscopist performance. Rounds of cognitive interviews were undertaken with independent colonoscopists, purposively sampled by professional role. Participants viewed the BCI and ‘talked aloud’ about content, followed by a semi-structured interview. The BCI was refined after each round, recruitment ceased when no new themes arose.

**Results** The BCI was based on the theory of planned behaviour and feedback intervention theory. 19 endoscopists participated in 6 interview rounds.

Case-mix adjusted MNP was endorsed as an acceptable performance metric after iterative refinement of explanatory text.

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

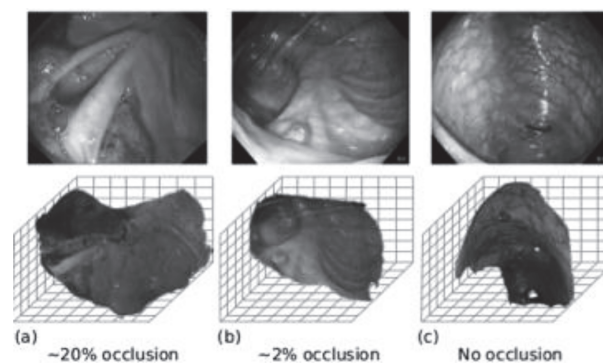
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**Introduction** Structure-from-Motion (SfM) is a computer vision technique which allows us to estimate the 3D structure of a scene from a set of 2D images. Our aim was to use this to automatically identify quality of bowel preparation.

**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



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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.

**Acknowledgement** The EndoMapper project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 86314.

#### 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.<sup>1</sup> 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<sup>2</sup> 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