Results Plan-Do-Study-Act cycles from field notes identified barriers and drove regular improvements e.g. phantom recruitment, a GP poster, grouping of nearby practices, and training healthcare assistants to breath-test. In total 636 patients were enrolled, suggesting breath testing is feasible in Primary Care. Sampling was feasible, with some equipment-related but few patient-related limiting factors reported. Analysis was also feasible, with 34% and 55% of samples analysed within <48 and 72 hours respectively. Two abundant breath compounds, almost universally present, were accurate predictors of adequate sample quality, using acetone >50 ppb (H3O +ionisation, PTR) and isoprene >2.5 ppb (NO +ionisation, PTR). This was validated on 284 separate patients’ samples. A process was also developed to interrogate ReCIVA software sampling data.

Conclusions Breath testing is feasible in Primary Care, from a human factors and process perspective. This finding, and the development of a QC process, opens up the possibility of large-scale breath testing, pending results of diagnostic accuracy studies. A revised recruitment target of 1000 with new patient acceptability questionnaires will likely provide further evidence for this.

Abstracts

**WOE-036 IMPLEMENTATION OF CYTOSPONGE™ DEVICE TRAINING FOR NURSES IN PRIMARY CARE**

1Irene Debiriam Beecham*, 1Binny Alias, 1Tara Nuckcheddy, 2Ben Bowers, 2Lisa Murray, 3Ashley Wilson, 3Beth Muldrew, 2Zobrah Khan, 2Maria O’Donovan, 1Shona MacRae, 3Peter Sasieni, 1Rebecca Fitzgerald. 1MRC Cancer Unit, University of Cambridge, Cambridge, UK 2Endoscopy Dept, Queen Alexandra Hospital, Portsmouth, UK 3Barts Clinical Trials Unit, Centre for Cancer Prevention, Queen Mary University of London, London, UK 4Histopathology Department, Cambridge University Hospitals NHS Foundation Trust, Addenbrookes Hospital, Cambridge, UK

Introduction The Cytospone™ device offers a less invasive way to test for Barrett’s oesophagus and early oesophageal cancer in patients with acid reflux symptoms. Due to the low cost compared with endoscopy, the device could have a direct impact on NHS spend. The procedure is safe, less time consuming, and should be straightforward for nurses to administer in a primary care setting. The BEST3 trial is a UK-wide randomised trial of Cytospone™ compared with usual care, which provides an ideal opportunity to determine the feasibility and roll out of the device for administration by Practice Nurses and Clinical Research Network Nurses.

Methods A training module has been designed to ensure that nurses have background knowledge of Barrett’s and the clinical follow-up plan if a patient is given a positive diagnosis. Risks and benefits of having the procedure are explained and Standard Operating Procedures (SOPs) discussed to deal with any adverse events.

Training is delivered in two stages: i) Centralised training where nurses attend in groups of between 2–10 individuals using a combination of videos, PowerPoint presentations and live clinical procedures. ii) Nurses observe at least one procedure and are then supervised until they feel confident.

All nurses are then assessed by a trainer in their technique of safe delivery and withdrawal of the device. Once signed off they are able to carry out clinics independently with ongoing monitoring by the Trials Unit.

Results 15 CRN Nurses and 8 GP Practice Nurses from 30 surgeries have been trained during the BEST3 trial. Following
the training programme, the CRN nurses were generally deemed competent after 3 clinic sessions, whereas the Practice Nurses required 2 clinic sessions as they were more used to delivering clinical interventions. The nurses found that having the intense training close to the time of starting the clinics, and the extended supervision, enabled them to feel confident quickly. During the training phase, more patients required a second attempt to swallow the device before it was successful. Specifically, 9% of the patients received 2 Cytosponge™ before the device was successfully swallowed and 4% (12 out of 331) were unable to swallow after two attempts. In comparison, 99% of patients received a successfully delivered device when administered by a Trainer.

Conclusion The Cytosponge™ device is suitable for delivery by nurses in the primary care setting. The feedback received on the training module was positive and therefore Cytosponge™ training would be suitable to wider implementation in the NHS setting, with the added benefit of a potential cost reduction when compared with endoscopy.

Abstract OTH-004 Table 1

<table>
<thead>
<tr>
<th></th>
<th>Experienced endoscopists</th>
<th>Trainee endoscopists</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-training</td>
<td>Post- training</td>
</tr>
<tr>
<td>Sensitivity (95%)</td>
<td>79.1 (70.5– 87.4)</td>
<td>97.4 (92.6– 99.5)</td>
</tr>
<tr>
<td>Specificity (95% CI)</td>
<td>94.5 (88.5– 96.4)</td>
<td>90.9 (89.3– 92.6)</td>
</tr>
<tr>
<td>PPV (95% CI)</td>
<td>97.9% (95.9– 98.7)</td>
<td>97.1% (96.6– 97.5)</td>
</tr>
<tr>
<td>NPV (95% CI)</td>
<td>86.2% (83.8– 89.3)</td>
<td>86.1% (82.7– 89.4)</td>
</tr>
</tbody>
</table>

Conclusions The use of a bespoke BLI classification system with adequate training can significantly improve the sensitivity and NPV of adenoma detection in both experienced and non-experienced endoscopists thereby enabling the full potential of this novel imaging technology to be realised.

Abstract OTH-005

PROSPECTIVE MULTI-SITE AUDIT OF ACUTE UPPER GASTROINTESTINAL BLEEDING DELIVERED ACROSS MULTIPLE REGIONS BY TRAINEE-LED NETWORKS

Introduction Trainee-led networks were developed to support improvements in patient care by delivering audit, quality improvement and research projects across multiple sites. The Midlands was the first UK region to establish gastroenterology trainee research networks: WMRIG in 2015 and the GARNet in 2016. North West trainees established GasTRIN NoW in 2017. Here, we report the first project in the UK to be delivered simultaneously by trainee physicians through multiple networks.

Methods We audited the care of patients with acute upper GI bleeding (AUGIB) against national quality standards (NICE Q338 and JAG GRS) and collected data on patient and process outcomes. Patients aged ≥16 years admitted with suspected AUGIB who underwent an inpatient OGD were prospectively identified in a consecutive 30 day window from November 2017. Anonymised data and outcomes to 30 d were collected using common proformas and protocols.

Results 471 patients were identified across 30 sites (EM: 157, 8 sites, WM: 193, 12 sites, NW: 121, 10 sites). We report the population characteristics and selected audit and outcome measures for 455/471 (97%) with complete data available. The mean age was 65 years (SD 18.1, range 17–100) and 54% were male. 45% presented on weekdays 7am-7pm, 32% on weekdays outside these hours and 23% at weekends. The median time from presentation to OGD was 22.5 hour (IQR 12.7–43.9 hour), with 54% performed within 24 hour (range at sites 22%–88%;>50%: 18 sites, >75%: 5 sites). Glasgow Blatchford scores were recorded pre-OGD in 47% (range at sites 8%–100%), with median score 7 (IQR 1–12;≥8: 46%,≥12: 26%). Endoscopic findings were: 63% non-variceal,
EVALUATION OF SIMULATION-BASED INDUCTION PROGRAMME TO ENHANCE ACQUISITION OF HANDLING SKILLS FOR UPPER GI ENDOSCOPY

**PTH-129**

Kate Edwards*, Keith Siau, Peter Neville, Jeff Turner, Amanda Beale, Susi Green, A Muruganathan, Neil Hawkes, Cwm Taf University Health Board, Merthyr Tydfil, UK 1Royal Wolverhampton NHS Trust, Wolverhampton, UK 2Cardiff and Vale UHB, Cardiff, UK 3Bristol Royal Infirmary, Bristol, UK 4Royal Sussex County Hospital, Sussex, UK

**Introduction**
Endoscopic training pathways in the UK need to support efficient development of complex motor skills. Previous studies have demonstrated benefit from use of simulators in the early phase of training. However a target of a 25% improvement performance should be demonstrated to remain cost effective. The SPRINT induction programme aims to provide a structured sequence of training elements to optimise and accelerate the early phase of training in upper GI endoscopy. We hosted a Tri-deanery simulation training event using the Surgical Science EndoSIM.

**Methods**
Baseline data on previous training experience was obtained from 20 trainees attending the SPRINT induction. Pre-course self-assessed competency scores in 12 upper GI handling skills domains were provided and mapped to the Joint Advisory Group on GI Endoscopy (JAG) DOPS assessment forms. Domain scores were given a rating from 0–10 on a Likert scale (0=not at all competent, 10=very competent). Trainees completed a structured curriculum of simulator training and a series of small group teaching seminars on technical aspects of endoscopy and lesion recognition. At the end of the course trainees provided further self-assessed competency scores and rating scores for small group teaching sessions. Differences in the competency scores were determined by the Mann Whitney U test with an alpha value of 0.01. The proportion of trainees with less (0–25 procedures) and more experience (26–50 procedures) reporting greater than 25% domain score change was tested using the Chi-squared statistic.

**Results**
Paired scores (n=20) showed a significant increase across all 12 upper GI handling skills domains following the training intervention (p<0.01, alpha=0.01, two-tailed). The proportion of trainees reporting >25% difference in domain scores was greater for trainees with less experience compared to more experienced trainees [p<0.05 for all domains]. All trainees rated good/excellent small group sessions in scope handling, lesion recognition, and endoscopic non-technical skills.

**Conclusion**
This study demonstrates significant benefit from the EndoSIM simulator across all upper GI technical skills domains. Simulation training is best targeted in the early stages of endoscopy training (0–25 cases), but there remains some benefit to more experienced trainees. Small group training provides additional value during the SPRINT induction. These findings further support inclusion of simulation as part of the JAG certification pathway for upper GI endoscopy.

**Introduction**
Genomics and personalised medicine are increasingly important for patients with gastroenterological conditions. The higher training curricula of other specialties (e.g. cardiology and oncology) have been revised with the addition of modular training in genomics. Our aim was to capture the present state of genomics training in gastroenterology to review current trainee understanding, clinical experience and long-term training needs, and to assess their preparedness for future consultant practice.

**Methods**
A web-based nationwide survey of all UK Gastroenterology specialty trainees was carried out in November and December 2017, supported by the British Society of Gastroenterology national training committee.

**Results**
100/658 UK Gastroenterology trainees (15.2%) across 17/18 deaneries and all specialty training levels responded to this survey.

Only 9% and 16% of trainees believe that their local training adequately prepares them for future clinical practice utilising genomic medicine and personalised medicine respectively. Barriers identified (% agreeing or strongly agreeing) include the need for greater trainee education (95%), inadequate clinical guidance to base interventions on results of genomic testing (53%), concerns over misinterpretation by patients (43%) and overuse/misuse of testing by clinicians (34%).

When assessing current mainstream genetic and personalised tests, trainees felt prepared to interpret HFE genotyping (98%), TPMT status (97%), and coeliac disease HLA subtyping (85%). However, only a minority of trainees felt prepared to interpret gene tests in patients with polyposis (34%), hereditary pancreatitis (30%), Lynch syndrome (33%), and KRAS in colorectal cancer (20%). For their future clinical practice, 76% of trainees did not know what mainstreaming of genomics would entail, with only 6% of trainees having recruited patients for the 100 k Genomes Project.
Most trainees would support having dedicated training days on genomic medicine (83%), formal training provisions for mainstreaming of genomic testing (64%), an update to the gastroenterology JRCPTB curriculum and SCE examination (57%), and better-defined pathways for referral to local genomic services (91%).

**Conclusions** Most UK gastroenterology trainees feel ill-equipped to practice genomic or personalised medicine as consultants, at a time of progressive mainstreaming of genomic practice in our specialty. We propose that the gastroenterology specialty curriculum requires specific revision to prepare trainees for genomics in their future clinical practice.

**Methods** A paper questionnaire was distributed to non-gastroenterology doctors of different grades (FY1, FY2/CT and SrR) within the medical and emergency department. The questionnaire was completed at the point of distribution with no conferring of answers. Respondents were assessed on: 1) their awareness of the care bundles, 2) when they would perform a diagnostic ascitic tap, 3) contraindications to ascitic taps, 4) the diagnostic criteria for SBP, 5) their confidence in performing the procedure and 6) whether they were aware of the usage of human albumin solution (HAS) in patients diagnosed with SBP.

**Results** There were a total of 45 responses (6 F1s, 30 FY2/CT, 8 SrRAs). 53% were aware of the trust’s care bundle and 40% were aware of the national care bundle. 64% of the respondents would perform a diagnostic ascitic tap in patients with decompensated liver disease who have been acutely admitted to hospital. Our trust has also incorporated a simplified version of the care bundle into the medical admissions clerking proforma. These patients are likely to be clerked by non-gastroenterologists at the point of admission. The aim of our study was to identify knowledge gaps to improve care of patients with SBP.

**Conclusions** Our study demonstrated that there was a lack of awareness of the available care bundles for management of patients with decompensated liver disease. It has also highlighted knowledge gaps which will be addressed with education and training sessions.

**References**

FIVE YEARS OF HIFIVE (HUMAN FACTORS IN VIRTUAL ENDOSCOPY): AN ENDOSCOPIC NON-TECHNICAL SKILLS SIMULATION PROGRAMME

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Introduction Endoscopic non-technical skills (ENTS) are increasingly recognised as a vital component of endoscopic ability. The Joint Advisory Group on GI endoscopy (JAG) have included them in their updated direct observation of procedural skills (DOPS) assessments of endoscopy competency and therefore competence in these skills is required for accreditation. However, a formal framework for teaching these skills has not yet been established. Here we describe our centre’s five year experience of running a one-day multidisciplinary immersive simulation course aimed at developing ENTS matched to the JAG curriculum.

Methods From 2012–17, we have run 8 simulation days involving 5 standardised scenarios based on real life serious incidents, using simulated patients, an endoscopy simulator (GI Mentor Express Symbionix) and vital signs consoles (iSimulate). Doctors, nurses and healthcare assistants from endoscopy units attended. From 2012–16 post course questionnaires were completed by attendees focused on learners’ perception of usefulness of the course on a 4 point Likert scale. From 2016–17 these questionnaires were updated to include pre and post course confidence scores in eight domains reflecting ENTS scored on a 3 point Likert scale. Student’s t-test was used to calculate statistical significance between pre and post scores in Microsoft Excel. Qualitative statements on what attendees had learned and how it would impact practice were also collected.

Results We retrospectively analysed the questionnaire responses of 22 doctors, 21 nurses and two healthcare assistants. From 2012–16 weighted averages of responses across all 21 statements indicate acceptability of simulation as a technique for teaching ENTS (median number of respondents=38).

From 2016–17 the average confidence across all eight domains increased (median number of respondents=16). Three of these achieved statistical significance (p<0.01) – ‘I can manage an emergency clinical care scenario using time and resources efficiently’, ‘I can manage complaints effectively with positive outcomes’ and ‘I can understand the human factors that play a role in complex clinical care situations’ (Chart 1)

Qualitative statements of lessons learned indicated that attendees found debriefing with the actor giving a patient perspective a very informative experience, increasing patient centeredness and discovering useful strategies for future practice.

Conclusions Over the last 5 years, this course has attracted attendees within our own deanery and nationally. We have shown that a one-day ENTS simulation course is feasible and can have a significant impact on trainees’ confidence in their non-technical skills. We believe this is a good model for delivering ENTS training for other centres to follow.

Abstract PTH-133 Figure 1

CONCLUSIONS

Conclusions Over the last 5 years, this course has attracted attendees within our own deanery and nationally. We have shown that a one-day ENTS simulation course is feasible and can have a significant impact on trainees’ confidence in their non-technical skills. We believe this is a good model for delivering ENTS training for other centres to follow.

Abstract PTH-134 ‘HANDS-ON’ ERCP COURSES: CAN QUALITY AND SAFETY BE MAINTAINED?

Introduction Nationally there is a drive amongst endoscopists to improve both procedural quality and safety through standardisation and sharing of best practice amongst trainers and trainees. This is perhaps most evident in colonoscopy where a number of KPIs and procedural evaluation tools (DOPyS) have been established in order to meet the requirements for JAG accreditation. ERCP however seems to have lagged behind with no existing formal evaluation process in the UK, yet is arguably a more challenging procedure with more inherent risks than standard endoscopy. It is imperative that high quality ERCP training be delivered safely, and therefore we have reviewed our ‘hands-on’ ERCP course data over the last 10 years to see if we’re achieving this.

Methods RSUH provides ‘Hands-on’ ERCP courses in both basic and advanced skills training, and ‘train the trainer’ (TTT). Course data from 2007 – 2017 was collected from the ‘Unisoft’ endoscopy reporting system, the ‘iSoft Clinical Manager’ (ICM) and ‘Medisec’ databases. They were evaluated for the following:

1. Procedural success using standards outlined in the BSG’s 2014 ‘ERCP service framework’:
   - ≥85% cannulation rate of virgin papillae,
   - CBD stone clearance for ≥75% of those undergoing their 1st ERCP,
   - Successful stenting at 1st ERCP where required in ≥80%.
2. Patient safety; comparing our risk of procedural related adverse events against those quoted in the literature.

Delegate feedback was also reviewed where possible.
Gastroenterology in situ simulation: the ASPiH Drain Training: increasing CMT confidence and competence in abdominal paracentesis

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10.1136/gutjnl-2018-BSGAbstracts.531

Introduction Simulation is a powerful tool for learning, and has been shown to be effective for a wide range of skills. In situ simulation is delivered in the clinical setting with the objective of incorporating simulated learning into real working environments. This provides additional scope for learning, not only team working and clinical skills, but also in identifying latent errors. We established an in situ simulation programme within our gastroenterology department using the recent Association for Simulated Practice in Healthcare (ASPiH) key standards: clearly defined learning objectives, authentic delivery and faculty proficient in simulation-based education.

Methods We identified key learning objectives, highlighting both human factors (at an individual, team and organisational level) and clinical teaching pertinent to the gastroenterology team, to cover over the programme. We incorporated this into a series of clinically relevant scenarios including massive upper gastrointestinal haemorrhage, biliary sepsis and post-ERCP complications. We ran five sessions over a six month period with three faculty, involving twenty four participants across the spectrum of the multi-disciplinary team (MDT). Following each in situ simulation, we facilitated a short, structured debrief session highlighting key learning points, providing feedback and enabling reflection.

Results Twenty three of twenty four participants enjoyed the sessions and felt better prepared for similar real life clinical scenarios. All team members involved felt well supported during the debrief process. Through our sessions we recognised both latent error (confusion over the new massive haemorrhage protocol contact number) and resource requirements (no Sengstaken–Blakemore tube on the ward). Following the sessions we highlighted specific teaching needs, and established a mandatory teaching day for our Junior and Senior Clinical Fellows, focusing on the management of the acutely unwell adult.

Conclusions In conclusion, in situ simulation has proved a useful modality to deliver teaching in the clinical setting. The response from the multi-disciplinary team has been overwhelmingly positive, especially with feedback reporting it improved team dynamics. The team is currently expanding the in situ simulation programme across other wards to provide ongoing simulation teaching and consequently improve patient safety.

REFERENCE

PPTH-136

DRAIN TRAINING: INCREASING CMT CONFIDENCE AND COMPETENCE IN ABDOMINAL PARACENTESIS

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10.1136/gutjnl-2018-BSGAbstracts.532

Introduction Core Medical Trainees (CMTs) often find limited planned opportunities to practice abdominal paracentesis, a skill required for completion of Annual Review of Competence Progression (ARCP) and for medical registrar roles. This limited experience reduces procedural confidence. We aimed to provide CMTs at the Royal Free Hospital (RFH) with training and supervised opportunities to practice ascitic drain insertion with a view to increasing confidence and obtaining competencies for ARCP.

Methods An abdominal paracentesis teaching programme was introduced from October 2016 to July 2017. An online ‘Survey Monkey’ questionnaire assessed CMTs pre-existing experience in therapeutic procedures including ascitic drain insertion, their confidence performing procedures and availability of opportunities to practice with appropriate supervision. An online ‘Doodle’ poll offered CMTs weekly ‘drop in’ slots to attend the RFH Planned Investigation and Treatment Unit where patients attended for elective paracentesis. CMTs were given one-to-one teaching on ascitic drain insertion technique, including the use of bedside ultrasound to identify appropriate insertion sites. The CMTs were then supervised inserting ascitic drains on consenting, elective patients by an experienced clinician and signed off for Direct Observation of Procedural Skills (DOPS) assessments. A Whatsapp group allowed informal feedback and slot swaps amongst the CMTs. An online survey at the end of the programme sought feedback on how valuable the trainees had found it in improving procedural confidence and obtaining required DOPS. No complications were reported by supervisors during supervised drain insertion.

Results

<table>
<thead>
<tr>
<th>Abstract PTH-136 Table 1</th>
<th>Pre-programme (n=22)</th>
<th>Post-programme (n=14)</th>
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<tbody>
<tr>
<td>Respondents (out of 22 CMT’s)</td>
<td>19/22</td>
<td>14/14</td>
</tr>
<tr>
<td>Requisite experience (performed&gt;2 times)</td>
<td>32%</td>
<td>100%</td>
</tr>
<tr>
<td>Difficult/unable to gain experience previously</td>
<td>53%</td>
<td>-</td>
</tr>
<tr>
<td>Confidence performing paracentesis independently</td>
<td>26%</td>
<td>64%</td>
</tr>
<tr>
<td>E-portfolio signed off by experienced clinician</td>
<td>79%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Conclusion The introduction of a bespoke CMT paracentesis training programme at RFH helped trainees safely gain experience and confidence in ascitic drain insertion. The weekly opportunities throughout the year ensured all CMTs received the requisite number of DOPS assessments from experienced supervisors. Confidence performing the procedure increased significantly. However, following the programme, 36% of CMTs still lacked confidence performing paracentesis independently. Future programs should explore additional opportunities for simulation and real patient practice to further improve this. This model can be replicated in any Trusts with elective ascitic drain services, improving ARCP outcomes and increasing procedural confidence for CMTs progressing to medical registrar roles nationally.

**PHT-137** ENDOSCOPY EXPERIENCE FOR UK TRAINEES IN KHARTOUM, SUDAN: SOUTH YORKSHIRE EXPERIENCE


**Introduction** There is increasing interaction between UK gastroenterologists and those in resource-challenged countries. Our group has established links over 7 years with the Sudanese Society of Gastroenterology (SSG) and have previously provided training and support for consultant trainers, trainee endoscopists and endoscopy nurses, as well as supporting the annual SSG conference. Our host hospital, Ibn Sina (IS) is the national gastrointestinal centre and a World Gastroenterology Organisation training centre. Up to 60 cases of oesophageal varices are admitted per week. This is accounted for by the endemic nature of schistosomiasis and a high prevalence of viral hepatitis. This year, we arranged for 2 UK StRs to travel to Sudan to experience therapy for bleeding varices and to work in a resource-limited environment.

**Methods** Two ST4 registrars were selected from the South Yorkshire region after a competitive application process. Funding was provided by UK based Sudanese doctors, SSG and local research funds. They performed UGI endoscopy from 8th – 11th of January 2018 at IS. The trainees were JAG accredited for diagnostic gastroscopy (OGD) only, therefore all therapeutic interventions were supervised. Prior experience of one registrar was 370 OGDs with 4 variceal band ligation – VBL (16 months). Registrar 2 had performed 242 OGDs, one VBL (24 months). All patients provided written consent. Pharyngeal anaesthesia and/or intravenous sedation are not routinely used. Prospective collection of data included demographics, indications, endoscopic diagnosis and therapy.

**Results** Between the 2 UK StRs, 29 OGDs were performed in 4 days. These were both acute (14) and elective therapeutic (15) cases with a mean age of 51. 16 patients had VBL; 5 patients had sclerotherapy because of the unavailability of VBL; 1 patient had histoacryl glue injection of gastric varices; 1 had an oesophageal balloon dilatation. 6 patients did not require interventions. 55% (16/29) were related to portal fibrosis; 14% (4/29) were related to hepatitis cirrhosis.

**Table 1:** UGI endoscopic therapeutics performed over 4 days

**Conclusion** There is increasing cooperation between UK endoscopy and resource poor countries focusing on endoscopic training and support of their services. We have demonstrated that UK trainees can also benefit hugely from such interactions, both in terms of exposure to and skills acquisition from dealing with clinical problems relatively rare in UK training as well as experiencing the challenges of working in a resource poor healthcare setting. We would encourage these interactions as a mutually beneficial partnership. We plan to make the participation of our StRs a regular feature of our collaboration with SSG.

Introduction ERCP and Endoscopic ultrasound (EUS) are complex endoscopic procedures requiring highly skilled nursing assistants. For these to be performed safely and efficiently, regular training and teaching of medical and nursing assistants is essential. In addition EUS has rapidly evolved into a therapeutic endoscopic procedure similar to ERCP. There are several training courses for the endoscopists but very few dedicated courses for nurses. Nurses feel less confident, out of touch and vulnerable in this rapidly evolving branch of endoscopy. The aim of the course is to:

- Educate nurses on the basic principles of the ERCP and EUS
- Share best practice in this field of endoscopy including recent advances in the field
- Opportunity to familiarise themselves with various accessories in ERCP and EUS

**Methods** Since 2009 we have organised 9 annual courses which have been attended by >400 delegates from all parts of the UK. The programme is a combination of didactic lectures by nurses and endoscopists and breakout sessions with hands on training with models/equipment. The delegates complete a feedback questionnaire at the end of the day. We provide feedback from the last course in 2017.

**Results** 43 delegates attended the 2017 course from 16 regions in the United Kingdom. 41 (96%) delegates completed the questionnaire. The average experience of the staff working in endoscopy ranged from 6 months to 22 years. 30/41 (73%) of the delegates received funding from their trust. 24/41 (58%) had previously attended some form of informal ERCP ±EUS training. 36/41 (88%) thought their knowledge was either basic or moderate prior to the course but 41/41 (100%) delegates said that their knowledge had definitely improved after the course. 22/41 (54%) delegates thought their ability and confidence to assist during an ERCP or EUS was either basic or moderate prior to the course but 38/41 (93%) delegates said that it improved after the course. 41/41 (100%) attendees agreed that all nurses involved in pancreatobiliary endoscopy should undergo a training course within the first year in post in the endoscopy unit. 100% of the delegates stated that it gave them an opportunity to interact with colleagues from other units and thereby take back ideas to implement in their respective units.

**Conclusions** Feedback from the course was positive with evidence of improved knowledge and confidence in assisting in EUS and ERCP. This course has highlighted the advantage of dedicated training in pancreatobiliary endoscopy. NHS trusts appear to be keen to support training nurses and this course...
goes some of the way to meet the unmet need to provide a comprehensive national training programme for nurses involved in ERCP and EUS.

**PTh-139 GASTRIN NOW: ESTABLISHING A TRAINEE LED RESEARCH NETWORK**

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10.1136/gutjnl-2018-BSGAbstracts.535

**Introduction** Research, quality improvement and audit are essential parts of effective personal and professional development. Increasing clinical demands and the proposed shortening of training time may limit trainees’ involvement in clinical research. Trainee led research and improvement networks (TLRINs) allow us to develop large, cost-effective, multi-site quality improvement and research projects without necessitating time out of programme. They also provide opportunities for tailored input dependent on personal clinical interest.

**Aims** To assess the feasibility of a new TLRIN, GaTRIN NoW, within Health Education England North West, by conducting a multi-site clinical audit. We aimed to recruit trainee members from 75% of 16 potential hospital sites, and from these obtain 75% complete data.

**Methods** Membership was offered to all gastroenterology specialty trainees in the North West Deanery. All consultants were offered honorary membership. We replicated an audit proforma from the West Midlands TLRIN (GARnet) to assess the management of acute upper gastrointestinal bleeds, collecting prospective data over a one month period. Members were required to sign a constitution to ensure fair acknowledgment of work. Video conferencing enabled regular committee meetings with additional updates to members at regional gastroenterology teaching days.

**Results** Led by a committee of 6 trainee members, 27 trainees, supported by 25 consultants, from 13 sites (81%) were recruited to GaTRIN NoW. Complete audit data were received from 10 sites (77%).

**Conclusion** The need for and utilisation of TLRINs is increasing in gastroenterology. TLRINs offer trainees the opportunity to experience research and quality improvement in a peer-supported environment alongside clinical work. This will allow them to achieve competencies required for successful attainment of CCT and become more rounded consultants of the future. TLRINs provide a cost effective approach to answer questions of clinical importance and provide innovative change for the future. TLRINs can effectively supplement early conventional training or another form of simulation. Clinical outcomes were considered, including composite score of competency, procedure completion, time, mucosal visualisation, complication rate, discomfort, global rating of competency. We pooled effect size using random-effects meta-analyses.

**Results** We identified 18 studies with 421 participants. Ten studies compared VR training with no training, 5 with conventional training, 1 with another form of simulation, and 2 compared VR training methods. Table 1 summarises meta-analyses results. Compared with no training, VR training is beneficial as measured by a priori outcomes. Combined VR and conventional training appears to be beneficial compared to VR training alone. VR curricula grounded in educational theory, such as a progressive learning-based curriculum, provided benefit regarding composite score of competency. Definitive evidence for or against VR training in place of conventional training or another form of simulation is lacking.

**Conclusion** VR training can effectively supplement early conventional endoscopy training. Comparative effectiveness studies of different simulation modalities are limited. Newer trials provide insight into simulation training approaches grounded in educational theory that improve subsequent clinical performance.

**Abstract PTh-140 Table 1 Meta-analyses**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Studies (n)</th>
<th>Procedures (n)</th>
<th>Effect Size</th>
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<tbody>
<tr>
<td>Simulation training versus no training</td>
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<td></td>
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<tr>
<td>Composite Score of Competency</td>
<td>1</td>
<td>24</td>
<td>0.73 [-0.10, 1.57] *</td>
</tr>
<tr>
<td>Procedure Completion</td>
<td>6</td>
<td>815</td>
<td>1.62 [1.15, 2.26] *</td>
</tr>
<tr>
<td>Time</td>
<td>2</td>
<td>29</td>
<td>-0.39 [-1.13, 0.35] *</td>
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<tr>
<td>Discomfort</td>
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<td>200</td>
<td>-0.30 [-0.89, 0.29] *</td>
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<tr>
<td>Global Rating Competency</td>
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<td>36</td>
<td>1.43 [0.67, 2.19] *</td>
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<tr>
<td>Mucosal Visualisation</td>
<td>1</td>
<td>55</td>
<td>0.79 [0.24, 1.34] *</td>
</tr>
<tr>
<td>VR simulation training versus conventional training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procedure Completion</td>
<td>2</td>
<td>174</td>
<td>0.45 [-0.27, 0.17] T</td>
</tr>
<tr>
<td>Time</td>
<td>2</td>
<td>34</td>
<td>0.12 [-0.95, 0.29] *</td>
</tr>
<tr>
<td>Global Rating of Competency</td>
<td>1</td>
<td>16</td>
<td>-0.23 [-1.52, 0.06]</td>
</tr>
<tr>
<td>Mucosal Visualisation</td>
<td>1</td>
<td>18</td>
<td>0.00 [-0.92, 0.92] *</td>
</tr>
</tbody>
</table>

Statistics: *SMD; TRR
**PTH-141** THE LEARNING CURVE FOR POLYPECTOMY AND ENDOSCOPIC MUCOSAL RESECTION (EMR): A SYSTEMATIC REVIEW

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**Introduction** Lower gastrointestinal (LGI) endoscopy has evolved from being a diagnostic procedure to include therapeutic procedures such as polypectomy and EMR. For training purposes, there is a need to define the learning curve (LC) and competency markers for these procedures.

**Methods** A systematic review of the literature from 1946 to August 2016 was conducted by searching Pubmed, Embase and Web of Science. The search strategy used key MeSH terms and text words related to LC in LGI polypectomy and EMR. Full-text review of eligible studies and a quality appraisal (modified Donn’s and Black scale) was performed for each identified study. Outcome measures were analysed to try to identify LC and competency markers.

**Results** Initial database search identified 754 articles and after applying exclusion criteria, 3 articles for polypectomy and 3 articles for EMR were identified for review. A variable range of predefined outcome measures were used to calculate LC and technical competence in the included studies.

**Conclusions** There are very few studies examining the LC of polypectomy and EMR with wide variation in LC. Several outcome measures were identified that could be used to assess competency in polypectomy (DPPR, recurrence, and polypectomy completion rate) and EMR (recurrence and bleeding). There is a need for more robust studies to further understand the LC of polypectomy and EMR. Current training guidelines for polypectomy and EMR require further evaluation.

**REFERENCES**
1. JAG (UK) 2011
2. Downs, et al. 1998
4. Boo, et al. 2015

**PTH-142** SAFER STEPS: BARRIERS TO IMPLEMENTING SAFETY INTERVENTIONS IN A MULTI-SITE ENDOSCOPY SERVICE

Margaret Scott*, Richard Thomson, Leigh Donnelly, Tom Lee. Northumbria Healthcare Foundation Trust, Newcastle Upon Tyne, UK

10.1136/gutjnl-2018-BSGAbstracts.S38

**Introduction** World Health Organisation (WHO) checklisting is a recommended step prior to every endoscopic procedure with the potential to positively impact on patient morbidity and mortality if used effectively. Research in other settings demonstrates reduced error and improved safety where checklists are widely used, however there is evidence to suggest that significant investment is required in terms of multi-professional team-based training in order to improve safety behaviour. This study aimed to identify barriers to implementation of check listing as part of a Safer Steps programme in a large multi-site endoscopy suite.

**Methods** The study setting was a large endoscopy service based in the North of England. The service incorporates 32 endoscopists and 80 nurses working across 5 sites over a large geographical area. A round table exercise was conducted at a service away day. 70 nurses, administrative staff, endoscopists and managers contributed. Participants were asked to identify ‘challengers’ and ‘enablers’ to use of and pre-endoscopy checklist as part of safer steps programme including pre-list huddle, preprocedure time out, post-procedure sign-off and post-list debrief. Discussions were documented and subjected to thematic analysis.

**Results** Frequently encountered themes included:

**Abstract. PTH-142 Table 1 TEAM BRIEF – ‘The Huddle’**

<table>
<thead>
<tr>
<th>CHALLENGES</th>
<th>ENABLERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complacency</td>
<td>Unit staff drives for huddle</td>
</tr>
<tr>
<td>Distractions</td>
<td>Motivation of unit staff</td>
</tr>
<tr>
<td>Hierarchy</td>
<td>Equipment needed problems identified</td>
</tr>
<tr>
<td>Lack of consistency</td>
<td>Introductions and roles identified</td>
</tr>
<tr>
<td>Non-compliance</td>
<td>Knowing what to expect from the list</td>
</tr>
<tr>
<td>Familiarity</td>
<td></td>
</tr>
<tr>
<td>Lack of assertiveness</td>
<td></td>
</tr>
</tbody>
</table>

**Abstract. PTH-142 Table 2 TIME OUT – ‘The Pause’**

<table>
<thead>
<tr>
<th>CHALLENGES</th>
<th>ENABLERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not everyone recognises the value of time out</td>
<td>Brings the team together</td>
</tr>
<tr>
<td>Becomes a ‘tick box’ exercise</td>
<td>Patients kept safe</td>
</tr>
<tr>
<td>Poor time management</td>
<td>Makes everyone aware of risks and to remind each other</td>
</tr>
<tr>
<td>Getting everyone together at the same time</td>
<td>When everyone participates risks are highlighted</td>
</tr>
<tr>
<td>Loss of focus during timeout, concentrating</td>
<td>Identifies patient alerts, consent, medical conditions, allergies</td>
</tr>
<tr>
<td>Distractions</td>
<td></td>
</tr>
<tr>
<td>Starting time out before all staff are in the room</td>
<td></td>
</tr>
<tr>
<td>Sign out not signed</td>
<td></td>
</tr>
</tbody>
</table>

**Abstract. PTH-142 Table 3 SIGN OUT – ‘Sign Off/Strike Off’**

<table>
<thead>
<tr>
<th>CHALLENGES</th>
<th>ENABLERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time constraints</td>
<td>Right patient, right report and right diagnosis</td>
</tr>
<tr>
<td>Entire team not always</td>
<td>Two nurses checking reports and specimens before next patient arrives in the room</td>
</tr>
</tbody>
</table>

**Abstract PTH-142 Table 4 DEBRIEF**

<table>
<thead>
<tr>
<th>CHALLENGES</th>
<th>ENABLERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debrief does not happen</td>
<td>Boosts morale</td>
</tr>
<tr>
<td>Endoscopists leaving department without checking patients</td>
<td>Identifies any issues</td>
</tr>
</tbody>
</table>
Conclusions Endoscopy staff report that human factors present barriers to the performance of checklisting.

There is a need to further explore the relationship between direct observation of practice and non-technical skills and whether training in human factors for endoscopy teams can reduce adverse events and improve safety behaviour.

**Abstract PTH-141**

Table 1 summarises the LC studies on polypectomy. Choung et al.3 noted a <1.2% DPPB* rate for endoscopists who had performed >400 polypectomies, which was below the 2% predefined cut-off. In Boo et al.4, the en bloc resection rate for trainees increased steadily & average CP time decreased significantly with experience (p<0.001). The success rate of >80% was achieved by trainees after 250 snare polypectomies. Patwardhan et al.5 noted that rates of independent snare polypectomy were consistently >90% after 300 colonoscopies & >95% after 700 colonoscopies.
ALIGNING JETS SEDATION KEY PERFORMANCE INDICATOR MEASUREMENTS WITH CURRENT UK STANDARDS: IMPACT ON TRAINEE OUTCOME

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Background The measurement of sedation KPIs in colonoscopy varies between JETS certification criteria and recent UK standards. To align standards in preparation for the National Endoscopy Database (NED), changes were recently made on JETS: 1) measuring average sedation doses, when used, with mean vs. median, and 2) reducing the maximum recommended midazolam dose in patients aged 70+ from mean of 2.5 mg to median of 2 mg. We aimed to explore the impact of these changes on trainee outcomes of exceeding recommended average doses.

Methods Sedation KPIs for midazolam [M], fentanyl [F] and pethidine [P] were extracted from the JETS e-Portfolios of trainees awarded provisional colonoscopy certification (PCC) between June 2011–2016, and stratified by drug and age (<70 vs. 70+). Calculations were applied at trainee level in the 50 procedures pre-PCC. Unsedated procedures were excluded. Normality testing was performed using the Shapiro-Wilk method, with skewed data expressed in medians and pairwise comparisons of KPI data made using Wilcoxon and McNemar’s tests.

Results 733 trainees performed 36,650 procedures with M (75.6%), F (49.6%) and P (25.3%). Normality testing indicated the skewed distribution of sedation doses, which supported the use of medians. At trainee-level, changing mean to median resulted in smaller average doses of M, F and P for patients aged <70 and 70+ (figure 1), with lower estimates in 41.6%. Fewer trainees exceeded the 2.5 mg midazolam dose threshold in 70+ (table 1) when averaged with median (4.4%) vs. mean (8.1%) [p<0.001]. In this group, limiting the median M dose from 2.5 mg to 2 mg led to an increase in trainees failing to meet this standard (from 4.4% to 10.7%, p<0.001). Overall, the change of KPI measurement increased the proportion of trainees exceeding the new sedation threshold at PCC from 8.1% to 10.7% (p=0.010).

Conclusions The JETS sedation KPIs have aligned with UK standards. As this may affect trainee outcome, all colonoscopy trainees and trainers should take note and exercise caution with sedation use, particularly in elderly patients.
**Introduction** Direct observation of procedural skills (DOPS) are tools designed by the Joint Advisory Group (JAG) to assess competence in endoscopy. These were expanded in July 2016 (new DOPS) to include those specific to paediatric gastroscopy (OGD). However, paediatric OGD DOPS assessments have not been validated.

**Methods** We performed a prospective UK-wide analysis of formative paediatric OGD DOPS submitted to the JETS e-Portfolio over one-year (August 2016–2017). Scores were averaged across procedural domains (pre-procedural, procedural, post-procedural and endoscopic non-technical skills – ENTS), and according to skillset (cognitive or technical), and compared with the overall performance score using Spearman’s correlation. Overall scores were also compared by trainee grade.

**Results** 157 DOPS assessments were completed by 20 unique trainers for 17 trainees. Overall performance score comprised: 1: Maximal supervision (4.5%), 2: Significant supervision (14.0%), 3: Minimal supervision (24.8%) and 4: Competent (56.7%). By domain, overall competence correlated most with mean scores for the ‘Retention and Withdrawal’ domain (rho: 0.884, p<0.001), Management (rho 0.834, p<0.001), Visualisation (rho 0.819, p<0.001), ENTS (0.773, p<0.001), Post-procedural (rho 0.611, p<0.001) and pre-procedural (rho 0.575, p<0.001). By skillset, overall score correlated most with performance in ‘Technical’ (rho 0.860, p<0.001), followed by ENTS and ‘Cognitive’ domains (rho 0.742, p<0.001) domains compared to ENTS. In terms of DOPS items, overall competence score correlated most with ‘Management of Complications’ (rho 0.852, p<0.001) and ‘Angulation and Tip Control’ (rho 0.834, p<0.001), least with ‘Confirms Consent’ (rho 0.396, p<0.001) and ‘Equipment Check’ (rho 0.528, p<0.001). Overall scores correlated with seniority of training (p<0.001) [figure 1], demonstrating construct validity.

**Conclusions** Competencies in paediatric OGD, as assessed within DOPS, vary in their correlation with overall competence. Strong correlations were reported for the ‘Insertion and Withdrawal’ domain, ‘Management of Complications’ items, and ‘Technical’ skillsets. As assessors are completing the new DOPS in a consistent manner, with scores improving by seniority, this provides valid evidence for the new paediatric OGD DOPS.

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**Abstract PTH-145 Figure 1**
are completing the new DOPS in a consistent manner, this provides novel validity evidence for the new paediatric colonoscopy DOPS.

**Abstract PTH-147**

**IMPROVING JUNIOR DOCTORS CONFIDENCE AND COMPETENCE IN CONSENTING PATIENTS FOR ERCP – AN EDUCATIONAL INTERVENTION**

1Heather Walker*, 1Heather Cracknell, 1Hannah Dix, 1Amin Elshibly, 1Mark Smith, 1Maximillian Groome. 1Gastroenterology Department, Ninewells Hospital, Dundee, UK 2Dundee Institute for Healthcare Simulation, University of Dundee, Dundee, UK

10.1136/gutjnl-2018-BSGAbstracts.543

**Introduction**

Obtaining high quality informed consent for endoscopic procedures is frequently devolved to Junior Doctors, within NHS Tayside there was previously no standardised induction or education for Junior Doctors regarding consent for endoscopic procedures.

We wished to assess Junior Doctors’ confidence with regard to the consent process for endoscopy and then develop an educational tool to improve this process as part of a quality improvement project.

**Methods**

An online questionnaire was distributed to Junior Doctors (FY1-CMT2) working within Medical Specialities in Ninewells Hospital, Dundee in August 2017.

Information was gathered both regarding frequency and the nature of procedures consented for. Alongside this self-assessment of confidence and competency in gaining consent for individual procedures as well as any barriers to gaining patient consent and ideas to improve the process was sought.

This data was analysed and a simulated consent video (focussing on ERCP) was produced and delivered as a short educational intervention to Junior Doctors. Further questionnaires were used pre and post educational intervention to assess Junior Doctors confidence and competency.

**Results**

24 Junior Doctors completed the initial questionnaire; 8 CT1s/GPSTs, 7 FY2s, 6 FY1s, 2 CT2s and 1 PA (physician associate).

54.17% of respondents were asked to gain patient consent for procedures at least weekly and 8.33% daily.
The most common procedures Junior Doctors were asked to consent for were OGD (95.83%), colonoscopy (70.83%) and ERCP (50%).

75% felt comfortable and competent to gain consent for OGD, 79.17% for colonoscopy, but only 54.17% for ERCP.

10 Junior Doctors received a short educational session focused around the simulated ERCP consent recording. Prior to the education 70% did not feel confident and competent to gain consent for ERCP. Following the intervention 100% feel confident and competent to gain consent for ERCP.

**Conclusions** A short educational intervention has been shown to be successful in improving Junior Doctors confidence and competence consenting patients for ERCP, with self-rated confidence and competence improving from 30% to 100% following the intervention. A wider number of junior doctors will be shown the video in the future and there are plans to expand this to all endoscopic procedures and embed this process as part of the Junior Doctor induction in the Gastroenterology Department.