10,124 endoscopic procedures of the colon (8,987 colonoscopies and 1,137 flexible sigmoidoscopies) were performed. Patients had an average age of 59 years (range 15-103) and 55 percent were female. Therapeutic endoscopy and emergency endoscopy were performed in 24% (n=2,385) and 0.7% (n=75), respectively. Forty-two percent of the patients underwent colonoscopy under sedation (n=4,202). There were 15 colonic perforations (0.15%). Colonoscopy had an approximately two-times higher risk for CP than flexible sigmoidoscopy (0.16% vs 0.09%). Patient gender, emergency endoscopy, anesthetic method, and a specialty or experience of the endoscopist were not significantly predictive of CP rate (Table 1). In mutlivariate analysis, patient older than 75 years (odds ratio=6.24, 95% confidence interval 2.26-17.26) and therapeutic endoscopy (odds ratio=2.98, 95% confidence interval 1.08-8.23) were the only two independent risk factors for CP. Conclusion: Incidence of CP in the WGO Endoscopy training center in Thailand was 0.15%. Patient older than 75 years and therapeutic colonoscopy were two important risk factors for CP.

Table 1. Univariate analysis of risk factors for colonoscopic perforation

Variable	Odds ratio (95% confidence interval)	P-value
Age over 75 Procedure (therapeutic vs diagnostic) Endoscopy (colonoscopy vs sigmoidoscopy) Trainee involvement Endoscopic examination under sedation Endoscopist (gastroenterologist vs surgeon) Male Endoscopic setting (emergency vs elective)	6.05 (2.19-16.70) 2.85 (1.03-7.85) 1.77 (0.23-13.51) 1.63 (0.58-4.59) 1.61 (0.58-4.45) 1.08 (0.39-2.99) 1.07 (0.39-2.96) 1.00	< 0.001 0.035 1.00 0.35 0.35 0.88 0.89 1.00

M1350

A Randomized Trial of 181 Patients to Topical Anesthesia with Lidocaine Versus Lidocaine Plus Xylometazoline for Unsedated Ultrathin Transnasal Upper Gastrointestinal Endoscopy

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Background: Ultrathin unsedated transnasal endoscopy is an emerging tool for endoscopic evaluation of the upper gastrointestinal tract. Topical anesthesia, with or without a nasal vasoconstrictor/decongestant, is required but the optimal regimen is unknown. Nasal vasconstrictor/decongestants, such as xylometazoline, may potentially improve nasal cavity patency and reduce epistaxis. Objectives: To determine the tolerance and effectiveness of lidocaine versus lidocaine plus xylometazoline for topical anesthesia in unsedated transnasal endoscopy. Methods: Participants were prospectively randomized to lidocaine plus xylometazoline (LX) versus lidocaine (L) for unsedated transnasal 4.9 mm ultrathin endoscopy. The primary outcome was overall procedural discomfort rated on a 10-point scale (1 = no discomfort to 10 = severe discomfort). Secondary outcomes were pain, gagging, endoscopist-rated insertion difficulty, encounter times, epistaxis, and adverse events. For each outcome, the mean ±SD were estimated within treatment groups; differences in the means and 95% CI are presented. Results: A total of 181 patients (mean age 40 ± 17 years) were randomized to LX (n = 94) and L (n = 87). Baseline characteristics were similar in both groups. Overall procedural discomfort was similar for LX and L [4.2 ± 2.4 vs 3.9 ± 2.1, 0.29 (95% CI -0.96,0.39)]. Transnasal insertion difficulty was lower on average with LX compared to L [2.4 ± 2.1 vs 3.2 ± 2.8, -0.80 (95% CI -1.54,-0.06)]. LX, compared to L, was associated with less time needed to apply anesthesia [2.4 ± 1.8 vs 3.5 ± 2.2 min, -1.10 (95% CI -1.71,-0.50)], less time for insertion [3.2 ± 1.8 vs 3.9 ± 2.2 min, -0.70 (95% CI -1.30,-0.10)] and less overall encounter time [21.4 ± 6.0 vs 24.3 ± 5.8 min, -2.90 (95% CI-4.64,-1.09)]. Epistaxis was rare but occurred less frequently with LX compared to L. Conclusions: There was little difference in tolerance between L and LX for unsedated transnasal endoscopy. However, LX was associated with less difficulty with endoscope insertion, and reduced insertion time and epistaxis.

M1351

Changes in Trainee Attitudes Towards Advanced Endoscopic Training Over Time

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Background: Opportunities for training in advanced endoscopic procedures (ERCP and EUS) are limited due to high demand and a relative paucity of fourth year ''advanced'' fellowship positions. We previously surveyed incoming fellows at the 2006 ASGE-sponsored First Year Fellows' Endoscopy Course, held in the first few months of fellowship, regarding attitudes and expectations towards advanced endoscopic training (AET) and found an overwhelmingly high (73%) level of interest in AET. Interest was high among both men and women, albeit somewhat higher in men (78% versus 59%). However, few respondents wishing to pursue AET were interested in endoscopic research (21%). The purpose of this follow-up study was to reassess attitudes towards AET later in training, by which point fellows would be expected to have clearer career goals. Methods: A 21-question survey was mailed to participants of the 2006 ASGE-sponsored First Year Fellows' Endoscopy Course at the end of their second year of fellowship training in the spring of 2008. This follow-up survey assessed interest in AET and knowledge of society guidelines regarding minimum thresholds for assessing competence. Results: Responses were obtained from 66 (22%) of 298 course participants. 58% and 47% of respondents expressed interest in training in ERCP and EUS, respectively. However, among 22 women, 15 (68%) were not interested in ERCP training, 5 (23%) were interested, and 2 (9%) were unsure. In contrast, among 43 men, 8 (19%) were not interested in ERCP training, 33 (77%) were interested, and 2 (5%) were unsure. Interest in ERCP training differed significantly between men and women ($p<0.01$, Fisher's exact test). Most women (61%) were not interested in EUS training, while over half the men (56%) were interested. However, these gender differences were not statistically significant ($p=0.08$, Fisher's exact test). Among respondents interested in ERCP (n=36) and EUS (n=30) training, only 19 (53%) and 9 (30%) correctly identified the number of ERCPs and EUSs, respectively, required to meet competency guidelines. Consistent with the previous survey, interest in endoscopic research remained low (27%). Conclusions: Interest in AET declined by the end of the second year of fellowship training, due in large part to loss of interest among women. Those who remained interested in advanced endoscopic procedures were not necessarily familiar with society guidelines regarding training thresholds for assessing competence. Based on these findings, the ASGE should consider promoting AET among women trainees, educating trainees regarding training guidelines, and supporting trainees engaged in endoscopic research.

M1352

Colonoscopy Skills Transfer from a Second-Generation Virtual Reality Simulator to Patients: A Multinational Randomized Blinded Controlled Trial

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Introduction: Training on virtual reality simulators has been shown to improve skills for novice endoscopists compared to no training. However, to date simulators have not accurately modelled colonic looping, and thus the training potential is limited as loop management is a key factor in skills development. A second-generation colonoscopy simulator has been specifically designed to model colonic looping and has the potential to teach knowledge and skills as effectively as standard training with no risk to patients and minimal instructor input. The new Olympus colonoscopy simulator was assessed for training in transferable skills. Methods: 37 novice trainees from four centers in the UK, Italy and the Netherlands were pre-assessed on the simulator using three previously validated cases. They were randomized to 16 hours training on the simulator (subjects, N=19) or on patients (controls, N=18) in a standardized fashion. All participants were then re-assessed on the same three simulator cases and on three live cases by blinded expert endoscopists using validated assessment instruments. Results: On simulator cases, subjects achieved significantly better post-training results on previously validated metrics such as completion rate (95% vs 70%, $p=0.001$), completion time (407 vs 743, $p=0.001$) and loop resolution ($p<0.001$) than the controls. They also demonstrated superior technical skills on safety aspects such as excessive insertion with an embedded tip (35% vs 74%, $p<0.001$) and obscured lens (5% vs 41%, $p<0.001$), and on simulated patient factors such as maximum pain scores (0.24 vs 0.45, $p=0.002$). Logistic regression confirmed significantly greater changes in performance for the subjects compared to controls from the pre-assessment across multiple measures. On the live cases, the subjects achieved equivalent success in terms of completion rates (11% vs 7%, $p=0.51$), distance intubated (48cm vs 52cm, $p=0.35$), Directly Observed Procedure Scores (16 vs 18, $p=0.92$), and Global Scores (16 vs 17, $p=0.35$). There was a marked decrease in instructor time (4 hours vs 16 hours), organization and effort required for training the simulator group. Conclusion: There is excellent skills transfer from the simulator to real colonoscopy. The simulator trained group demonstrated equivalent performance outcomes on real patients suggesting initial training can effectively be employed utilizing a simulator rather than real patients. This would reduce the burden both on patients and on instructors, and it should be considered as an additional training and assessment tool in the development of skills in colonoscopy.

M1353

Is a Six Hour Fast After a Rice Meal Sufficient Before Upper Gastrointestinal Endoscopy?

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Background: Rice is the staple diet in many Asian countries, which includes more than half the words population. Current endoscopic guidelines advice a 6 hour fast for solids and a 4 hours fast for liquids before the procedure. These guidelines focus on a Western type diet. Aims: To determine if a six hour fast for rice is sufficient prior to upper gastrointestinal endoscopy (UGIE). Methods: In a pilot study using real time ultrasound scanning we found that the time taken for complete gastric emptying after a standard rice meal was 10 hours. After informed consent, 209 patients referred for UGIE, without alarm symptoms, were randomized into two groups in preparation for UGIE: fasting 6 hours after a rice meal (R6) or fasting 10 hours after a rice meal (R10). All meals contained dhal and an egg, and were isocaloric. Endoscopic vision was graded as poor, average or good. Results R10 - vision poor in 3 (2.8%), average in 7 (6.5%), good in 97 (90.7%). R6 - vision poor in 23 (22.5%), average in 16 (15.7%), good in 63 (61.8%). The observed difference of percentages among the two groups for endoscopic vision was significant (Pearson Chi-Square; $P<0.001$). Conclusion: Fasting for 6 hours after a rice based meal seems inadequate for UGIE. Fasting for 10 hours significantly improves endoscopic vision. Current guidelines need to be re-evaluated for the Asian setting.

M1354

Is Oil-Assisted Colonoscopy Useful?

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Background: Cecal completion rates, procedure-related pain, and the difficulty of endoscopists are still problems to the beginners of colonoscopy. New methods to aid colonoscopic insertion such as warm water instillation and oil lubrication were proposed. The aim of this study was to evaluate the feasibility of warm water and oil method in colonoscopic insertion. Methods: Colonoscopy was performed in 117 unsedated patients by endoscopists-in-training. Patients were randomly allocated to 3 groups. In standard group ($n=39$), conventional method with administration of antispasmodic agent was used. In warm water group ($n=41$), 200 cc of water at 36°C was instilled into the sigmoid colon in the early phase of the insertion. In oil group ($n=37$), each 30 cc of commercially available seed cooking oil was instilled into the sigmoid colon, at the splenic and hepatic flexure. The success rate for total intubation within limited time, the cecal intubation time, the level of patient discomfort, and the degree of difficulty of endoscopists were compared among the three groups. Results: Cecal intubation time was shorter in warm water group than oil group ($p<0.05$). Procedural difficulty of endoscopists was increased in oil and standard group compared with warm water group ($p<0.05$). Patients' pain was higher in oil group than in the other two groups ($p<0.05$). The disadvantages of oil method were caused by hampered vision, persistent bowel spasm, and difficult handling due to lubricated shaft. However, there was no significant difference in the success rates for intubation within limited time among the three groups. Conclusions: Warm water method was a simple, safe, and feasible method to beginners during colonoscopy. However, oil lubrication method may not be a useful method compared to standard and warm water method.

M1355

The English National Endoscopy Quality Assurance Programme: Quality of Care Improves As Waits Decline

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Introduction: In England >90% of endoscopic activity, all endoscopist training and all complex endoscopy is done in 216 endoscopy units in large acute hospitals. Since 2005 these units have been self assessing the quality of patient care using the Endoscopy Global Rating Scale (GRS). The GRS provides a framework for service improvement as well as being an assessment tool. A peer-review accreditation process of all 216 units, based on the GRS, began roll out in 2006. This abstract describes progress with this national quality assurance programme of the English endoscopy service. Methods: The GRS is a web-based self assessment tool that assesses 12 aspects of the patient experience within two domains: clinical quality and quality of the patient experience (www.grs.nhs.uk). Each item is scored D to A where A is the best quality. Level B or better for each item is currently the standard required for all endoscopy services. Endoscopy units have been required to complete the GRS twice a year since April 2005. In 2006 a peer review accreditation process of endoscopy units, based on the GRS, began roll out. This process involves an assessment of the environment, policies and processes, staffing levels and competencies, and validation of the self reported GRS scores (www.thejag.org.uk). Results: Eight bi-annual censuses of the GRS have been completed with compliance rates in excess of 97% for the last six censuses. There has been a steady improvement in GRS scores and >80% of units are scoring level B or better for all but one item (appropriateness). To date 123 of 216 endoscopy units (57%) have undergone formal peer-review and validation of self report GRS scores. 107 of these have been accredited and 16 have been deferred pending submission of further evidence. Two have failed and will need to repeat the process completely. The improvements in quality have been achieved during a period of massive reduction in patients waiting more than 6 weeks for their procedure from >250,000 in 2004, to <2,000 in October 2008. Conclusion: These results indicate that the endoscopy service values the GRS to support service improvement and that the GRS can be used to support accreditation, providing a framework on which to base the assessment process. The combination of the GRS and peer review accreditation has lead to a substantial improvement in the quality of care of patients having an endoscopy in England during a period of massive reduction in waiting times.

M1356

Efficacy, Acceptability & Safety of MoviPrep vs Citramag vs Klean-Prep in Patients Undergoing Colonoscopy

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Background: Colonoscopy is considered to be the gold standard for investigation of the large bowel. Several proprietary preparations are available for bowel cleansing and Klean-Prep (Macrogol 3350; ®Norgine Pharmaceuticals) is most commonly used in our unit. Patients frequently report that its large volume and bad taste make it difficult to take. Aim: To compare tolerability and efficacy of Klean-Prep, MoviPrep (PEG 3350; ®Norgine Pharmaceuticals Ltd.) and Citramag ($MgCO_3$; ®Sanochemia UK Ltd.) for elective colonoscopy. Methods: A single-blinded study was carried out from October 2007-February 2008. Patients attending the nurse led pre-assessment clinic were allocated to one of the three treatment groups. Patients with Grade III-IV NYHA heart failure or significant renal impairment (eGFR<30) were excluded from the study. Patients completed a questionnaire reporting acceptability of the agent used. A blinded colonoscopist, using a rating scale, scored the colon cleansing for each procedure. Results: 259 patients recruited (86 MoviPrep, 92 Klean-Prep, 81 Citramag). 45.65% of patients rated Klean-Prep as tasting unpleasant (Vs 10.47% MoviPrep $p=0.008$; Vs 9.88% Citramag $p<0.0001$). 19.6% of patients prescribed Klean-Prep were unable to take the complete dose (Vs 1.16% MoviPrep $p<0.0001$; Vs 1.23% Citramag $p<0.0001$). Cleansing scores rated as 'pass' in 3 groups (Klean-Prep, MoviPrep & Citramag respectively) were 73.9%, 74.5% & 86.5% ($p<0.05$ for Citramag Vs Klean-Prep). No adverse events were recorded. Conclusions: Patients frequently reported that Klean-Prep tastes unpleasant and a significant proportion of patients did not take the prescribed dose. Low volume cleansing agents were better tolerated and cleaned the colon equally effectively as Klean-Prep. In clinical practice these advantages may lead to improved colonoscopy completion rates and enhanced diagnostic accuracy.

Scoring System Used For Colonic Cleansing

Segment Score	Irremovable, hard stools
0	Semi-solid, only partially removable stools
1	Brown liquid/removable semi-solid stools
2	Clear liquid
3	Empty & clean
4	
Grade	
A	All 6 segments grade 3 or 4
B	1 or more segment graded 2
C	1 or more segment graded 1
D	1 or more segment graded 0

Segments - rectum, sigmoid, descending, transverse, ascending, caecum

M1357

Variability in Detection of Adenoma and Polyps During Screening Colonoscopy, and Change Over Time with Education and Feedback

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Background: To date, there has not been a large prospective study designed to track changes in polyp detection over time for individual physicians and determine the effectiveness of targeted educational interventions. Methods: We prospectively collected information on all screening colonoscopies in average risk individuals 50 years and older performed by a community-based practice in the Twin Cities of Minnesota. Individual physician rates of adenoma detection, controlling for patient and procedure related factors, and trends over 4 year were plotted and the intra-class correlation coefficient calculated. Generalized estimating equations were used to identify factors associated with detection of adenoma and polyps. Results: From January 2004 thru December 2006, a total of 47,253 screening colonoscopies were performed by board-certified gastroenterologists. At least 1 polyp was found in 36% of exams, and at least one adenoma in 22% of exams. Detection rates of adenomas among the endoscopists ranged from 10% to 39%. There were no clear patterns of systematic improvement over time despite planned, systematic feedback and repeated educational programs. Factors associated with adenoma detection included age of the patient (OR 1.02; 95% CI 1.02-1.02), male gender (OR 1.53; 95% CI 1.34-1.74), and adequate prep quality (OR 2.26; 95% CI 1.64-3.12). Conclusions: The detection of adenomas for individual physicians over this 4 year period was variable and did not appear to change for individual endoscopists, despite planned,