**P51. IDENTIFYING TOP PRIORITIES FOR FACULTY DEVELOPMENT USING THE DELPHI CONSENSUS METHOD**

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**Presenter:** Shanley B Deal MD

**Background:** Faculty teaching skills are critical for optimal surgical education. Despite recent efforts to improve faculty teaching among surgical educators, there remains a disconnect between resident and faculty perceptions of teaching skills. A needs assessment of the faculty would help coordinate and prioritize efforts to improve surgical teaching. The objective of this study was to identify top priorities for faculty development as perceived by surgical educators.

**Methods:** The Delphi method is a systematic process of collecting and evaluating a research question by gathering expert opinions through multiple rounds of survey to achieve group consensus. We used a modified Delphi methodology to develop a survey to gauge surgical faculty perceptions of the value of faculty development activities, teaching strengths and weaknesses, best learning modalities, as well as barriers and priorities for faculty development. An expert panel developed and piloted the initial survey via a web-based tool for distribution to the surgical educator membership of the Association of Program Directors in Surgery (APDS). Responses were reviewed by the expert panel and condensed to 3 key questions with responses for redistribution to the survey participants for final ranking.

**Results:** Eight experts reviewed responses from 110 participants across 8 questions. 35 participants determined the final ranking responses to 3 key questions. The top three priorities for faculty development were: 1) Resident assessment/evaluation and feedback 2) Coaching for faculty teaching and 3) Improving intraoperative teaching skills. The top 3 learning modalities were: 1) Coaching 2) Interactive small group sessions and 3) Video-based education. Barriers to implementing faculty development included time limitations, clinical workload, faculty interest, and financial support. The highly valued faculty development opportunities included the American College of Surgeons, Surgeons as Educators course, APDS and the Association of Surgical Education annual meeting workshops, and local faculty development programs. Educator weaknesses were giving feedback, impatience and generational differences. Educator strengths included the ability to connect with a variety of learners, patience, communication, and dedication to training surgeons with a commitment to the educational mission of our profession.

**Conclusion:** The top priorities for faculty development initiatives should focus on resident assessment, coaching for faculty teaching skills and intraoperative teaching using a combination of coaching, small group didactic and video based education. Concerted efforts to recognize and financially reward the value of teaching and faculty development is required to support these endeavors and improve the learning environment for both Residents and faculty.
Background: Our hospital has 500 adult beds with 15 operating rooms. We perform an average of 812 cases a month. The operating room does not have a central inventory system and it was not clear how much disposable equipment being wasted and the cost associated with that waste. Our hypothesis was that we had a significant amount of wastage of disposable equipment. Our goal was to analyze the amount and type of disposable waste across various specialties.

Methods: This is a direct observational study that occurred in a single institution. Six rooms in the main operating room were studied over a period of eight weeks. The circulating nurses were asked to place any open but unused materials in a bin that had a green bag, separate from the regular trash and the biohazard bag. Materials with sharps and items soiled with body fluids were discarded but packaging retained. The research team collected these bags and logged each individual item using the catalog and reference number. A cost was assigned to each individual item based off the hospital’s supply catalog. Variables tracked included CPT code, operative time, estimated blood loss (EBL), emergent vs elective nature of the procedure, specialty and cost of each wasted item. Statistical analysis was performed using SPSS version 24 (IBM Inc., New York City, NY). EBL was examined at 50cc, 100cc and 200cc cutoffs. Operative time was examined at 1 hour, 2 hour and 3 hour cutoffs.

Results: 651 cases were done in these six rooms over a two month period. Our study captured 24.5% of these cases. We observed 160 cases across 7 specialties, including general surgery, emergency general surgery, urology, transplant, cardiothoracic surgery, otolaryngology, orthopedics and gynecology. The total cost of wasted equipment for this period was $7541. The estimated cost for this type of waste for the entire year for the operating room was $426,500. The most frequently wasted items were gowns, skin staplers and gloves, but the highest cost items were energy devices, clip appliers and stapler reloads. Variables associated with waste were blood loss of greater than 50 cc and operative times greater than 2 hours. The emergent nature of the case did not influence cost of wasted materials.

Conclusion: This small pilot study confirmed that there was significant wastage of disposable equipment and justifies dedication of resources to examine waste in a more systematic manner. The cost of wasted equipment was likely underestimated due to a higher percentage of cases captured performed during the day as well as observer bias. When comparing the items wasted to the current system in place for manual recording of waste, there was a significant discrepancy in number of items recorded, justifying the need for a centralized inventory system. Interventions facilitated by this study were correction of preference cards, removal of commonly wasted items from trays and moving items to “hold” categories, rather than opening items before the start of the case.
Background: Synoptic operative reporting has been shown to be more accurate in a few single institution experiences. We sought to examine the completeness of synoptic operative reports (SOR) for both laparoscopic cholecystectomy (LC) and pancreaticoduodenectomy (PD) in a multi-institutional pilot study.

Methods: Literature review and expert content analysis was used to develop an SOR for each procedure using a web-based survey link. Six institutions for PD and 7 for LC were recruited for participation. Cases were entered between November 2016 and May 2017. One institution collected associated dictated operative reports (DOR) as well as case matched historical dictated operative reports (HOR) for subset analysis. A checklist based on each SOR evaluated the completeness of all reports using descriptive statistics. A post-survey was sent to participants in each group to assess their experience using the SOR tool and results were analyzed using thematic analysis.

Results: 40 PD SORs were 98.5% complete; 27.5% were missing clinical stage. 35 LC SORs were 99.7% complete. Single institution subset analysis respective percentages complete were: 11 PD SORs 99%, DORs 70% and HORs 74% and 14 LC SORs 99.7%, DORs 76%, and HORs 75%. The percentage of frequently missed components for LC were: incomplete critical view of safety description (DOR 39%, HOR 41%), antibiotics given (DOR 29%, HOR 50%), counts correct (DOR 64%, HOR 79%), and indication for performing an intraoperative cholangiogram (DOR 50%, HOR 60%) and for PD were: clinical stage (DOR 91%, HOR 78%), stent type (DOR 45%, HOR 71%), resection R0/R1 (DOR 91%, HOR 80%), and pancreatic duct stent placement or not (DOR 73%, HOR 55%). Post survey results yielded 24 LC and 10 PD responses. Percent responding agree or strongly agree to the following statements were: 1) SOR was easy to use (LC 93%, PD 67%); 2) I would use SOR over DOR (LC 87%, PD 83%); 3) SOR would improve my ability to conduct QI projects (LC 87%, PD 67%). Benefits of use included standardized reporting, ability to conduct quality research, and removal of dictation costs. Barriers to using SOR included user-friendly electronic medical record (EMR) integration, information technology (IT) support, surgeon preference to dictate, and concerns over template abuse similar to standardized outpatient notes.

Conclusion: SOR are more complete than both study associated dictated operative reports and historical case matched dictated operative reports. The majority of surgeons indicated their preference for SOR and their willingness to use them. However, barriers to overcome included EMR integration, meaningful use, and IT support.
P56. ASSOCIATION BETWEEN SURGICAL DELAY AND POST-OPERATIVE MORBIDITY IN THE MANAGEMENT OF PERFORATED PEPTIC ULCERS
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Background: Untreated peptic ulcer disease remains a common problem among patients with limited access to healthcare. Perforated peptic ulcers (PPU) carry significant risk of morbidity and mortality. Early resuscitative efforts and source control are cornerstones in management; however, definitive operation may be delayed for multiple reasons. There is limited data describing the effect of timing of operation on patient outcomes. The aim of this study is to analyze the effect of timing from presentation in the emergency department to operation on morbidity for patients with PPU.

Methods: This is a retrospective analysis of all patients undergoing exploratory laparotomy with the finding of PPU at a single, intercity hospital from May 2009 – December 2016. Data: Patient demographics, co-morbidities, and clinical data were reported. Outcome measures: Post-operative complications (MI, stroke, PE, pneumonia, wound infection, wound dehiscence, peritoneal abscess, fistula, mortality), 30-day readmission, and length of stay (LOS).

Results: 52 patients with PPU were included; 13 (25%) suffered a major post-operative complication and 5 (9.6%) were readmitted. The median time to OR was 6.9 hours. The average time for patients with complications was 33.2 hours, and 12.3 hours for those without (p<0.07). Average time to OR was 62.5 hours for those with a 30-day readmission versus 13.2 hours for those without (p<0.03). Multivariate analysis demonstrated a strong correlation (0.0822, p<0.0001) between OR delay and LOS. Delay in patients with COPD is particularly detrimental (0.1851, p<0.032).

Conclusion: In patients with PPU, increasing time from initial presentation to operation is associated with increased morbidity, length of stay, and readmission.
Background: Although overall incidence of colon cancer (CC) has declined over the last three decades, the incidence has increased in patients younger than 50. The etiology of early-onset (EO) CC is not fully understood. Increased expression of Cartilage Oligomeric Matrix Protein (COMP), normally expressed in cartilage, was shown to confer tumor aggressiveness in prostate and breast cancers. Tumor aggression is often correlated with epithelial-mesenchymal transition (EMT). EMT is a developmental process characterized by cell separation and invasion that is recapitulated in metastasis. The aim of this study was to elucidate gene expression patterns in EOCC, show its uniqueness compared to late-onset (LO) disease, and demonstrate correlation of EOCC gene expression and EMT genes. We also find that overexpression of COMP gene is associated with poor survival.

Methods: Tumors and matching noninvolved tissues from 6 EOCC patients (<50 years old) and 6 late-onset colon cancers (LOCC) patients (>65 years old) were obtained from pathology archives. Deparaffinized tissues were macrodissected from FFPE sections, RNA isolated, and used for expression profiling of 770 cancer-related genes. Survival analysis was performed using the cBioPortal for cancer genomics using 367 CRC patients extracted as a subset of the TCGA COADREAD database. The data, gene-level transcription estimates, are shown as log2(x+1) transformed RSEM normalized count. We compared expression patterns between COMP and EMT markers for 433 CRC patients from the TCGA COADREAD database using the UCSC Cancer Browser.

Results: Among 770 genes assayed, 93 genes had changes in expression levels that were statistically significant between EOCC and matching noninvolved tissues and 118 genes had differences in expression levels between LOCC and matching noninvolved tissues. Comparative gene expression analysis between EOCC and LOCC normalized to their matching noninvolved tissues revealed changes in expression of 88 genes unique to EOCC using the cutoff criteria of expression levels difference >2 fold and P value <0.01. In this set, 28 were upregulated and 60 downregulated. COMP was one gene uniquely overexpressed in EOCC. Survival analysis of 367 patients with CRC tumors using cBioPortal for cancer genomics showed CRC patients with increased COMP expression (>=1.657) presented with poorer overall survival compared to patients with unchanged (-1.025 to 1.657) or reduced COMP expression (<= -1.025). A log-rank test produced a p-value of 0.0006. Further analysis of data from the cBioPortal showed coexpression of COMP with EMT markers Snai1, Snai2, Zeb1, Zeb2, Twist1, periostin, and MMP9.

Conclusion: These results suggest that sporadic EOCC is characterized by distinct molecular events compared to LOCC. In addition, COMP is overexpressed in EOCC, and associated with EMT markers and with poor overall survival. It may potentially serve as a novel biomarker associated with EOCC as COMP protein can be detected in serum and urine.
7:35am - 7:40am

P58. LAPAROSCOPIC TYPE IV HIATAL HERNIA REPAIR WITH TOUPET FUNDOPLICATION: CLINICAL OUTCOMES AND LESSONS LEARNED

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Presenter: Grant Garwood MS

Background: Laparoscopic repair of type IV hiatal hernia is challenging. Prior studies have reported on Nissen fundoplication. The aim is to assess clinical outcomes with Toupet fundoplication and identify lessons learned.

Methods: Patients who underwent laparoscopic repair of type IV hiatal hernia from 03/31/2011 08/30/2016 by a single surgeon were followed prospectively, using a phone questionnaire. All procedures were performed by the same anesthesia and OR team. The postoperative care was provided by a trained team of thoracic nurses.

Results: From 03/31/2011 08/30/2016: There were 294 hiatal hernia repairs. 101 consecutive type IV were included: 99 Toupet, 1 Dor and 1 crural closure. Values: median (IQR), 80 (79%) F, 21(21%) M, age: 68 (60-77), ASA: 3 (2-3), BMI: 29.4 (25.4-34.4), % herniated stomach: 80% (50-100). Other organs: omentum in all, 5 colon, 4 small bowel, 1 pancreas. The 3 most common chief complaints: 22% dysphagia, 18% epigastric pain, 13% heartburn. No strictures, 14% esophagitis, 3% Barrett’s esophagus, 4% Schatzki’s ring. Duration of operation: 143 min (125-179). None required Collis gastroplasty, 88% mesh, 1 conversion (none in the last 51 cases), 1 esophageal leak (none in the last 86 cases), and 1 transfusion. All had clear liquid diet in the post anesthesia recovery. Esophagram: 83% on POD #1. The distal esophageal angulation before repair (n=62) was 43.5 degrees (24-59) and after (n=83) was 76 degrees (66-85). Comparison for 52 matched values showed a significant improvement of 32 degrees (11-48), (p=0.0001). LOS: 2 days (1-3). No 30-day or in hospital mortality. Perioperative complications: 4 atrial fibrillation, 8 NGT placement, 1 HIT, 5 reintubation, 1 laparoscopic retrieval of Penrose, 2 DVT. Post-operative complications: 2 dilations, 1 port site hernia, 1 bowel obstruction, 1 empyema, 1 mediastinal hematoma, 2 pulmonary emboli. At the time of questionnaire there were 3 non related deaths. Questionnaire was obtained in 83/98 (85%) at 14 months (9-28), 93%: free of dysphagia, all were free of epigastric pain, 96%: free of heartburn, 96% able to eat as desired, 95% satisfied with the operation, 73% returned to daily activity < than 2 weeks, weight change: -0.5 (-10.0-4.5), 7% diarrhea, 17% excessive gas, 13% gas bloating: The use of PPI: 77% (before) vs. 14% (after) (p<0.001). Reoperation for symptomatic recurrent hiatal hernia: 6/83 (7%), 1 at POD #3 and 5 at 18 months (8.4-29.0), 4 were repaired laparoscopically, 2 required Roux en-Y esophagojejunostomy. None of the remaining patients had a reoperative hiatal hernia repair at our institution.

Conclusion: Laparoscopic repair of type IV hiatal hernia with Toupet fundoplication can be performed with low morbidity and excellent patient satisfaction. The most common chief complaint prior to repair is dysphagia that resolves in 93%. Leak and conversion can be minimized over time. Tension free esophageal length can be achieved without Collis gastroplasty. Reoperation for symptomatic recurrence is rare.
Background: In response to our faculty’s concerns about the quality and reliability of feedback from general surgery residents, we developed a novel faculty assessment tool. This study was designed as an interim analysis of this tool’s effectiveness and discriminatory ability.

Methods: Our department’s educational leadership developed milestones in seven domains that were scored one to four with each level demonstrating an educational approach that ranged from “ineffective” to “ideal”. Each PGY class meets annually to develop a consensus regarding each faculty member’s effectiveness in seven domains: (1) operative supervision (2) operative teaching, (3) clinic/hospital supervision (4) clinic/hospital teaching, (5) conference participation, (6) availability, and (7) overall contribution to the training program. We reviewed the results from the initial three years of this project. The annual national faculty survey administered by the ACGME was also analyzed to evaluate faculty satisfaction regarding feedback over the same study period. Data were assessed using Levene’s test for homogeneity, ANOVA, and Wilcoxon-Mann-Whitney tests.

Results: Forty-two faculty members were evaluated by a range of 29-32 residents. Twenty core faculty members were included on the annual ACGME survey. Each resident PGY class assigned faculty milestone scores that varied across the seven domains, demonstrating that faculty scores reflected variable opinions about each specific domain, while avoiding labeling an effective faculty member with all high scores and a less effective member with all poor scores.(p<0.0001). Milestone scores for a given faculty member differed across PGY classes, indicating that junior residents might evaluate a specific faculty member differently than senior residents. (p< 0.0001). The results from the three year study period on the ACGME anonymous faculty survey reflected an enhanced satisfaction with resident feedback of faculty during the study period improving from 68% vs 85% compliance with ACGME standards, our mean program score was 4.1 vs 4.5 with a national mean of 4.4. (p = 0.02).

Conclusion: This milestone-based faculty assessment tool improves the quality of the feedback from surgical residents when evaluating faculty. When residents are required to assign a specific statement that best describes faculty performance, the evaluation process is thoughtful and meaningful. A milestone-based faculty assessment strategy should be explored on a national level.