Abstract No. 625

Factors influencing successful implementation of a joint internal medicine–interventional radiology bedside procedure service at a large academic center

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Purpose: In 2016, our institution implemented a novel bedside procedure service jointly managed by the Department of Medicine (DOM) and Division of Interventional Radiology (IR), termed the Joint IM-IR Central Procedure Service (CPS). Since implementation, this service has resulted in significantly reduced complications, higher-than-predicted case volume, and overall positive cost-benefit. Here, we describe the development of the Joint IM-IR CPS at a large academic center and identify key aspects of the business proposal which aided in obtaining funding, with the goal of promoting successful adoption of similar services at other hospital systems.
Materials: Documents created by DOM and IR leadership during development of the service were critically reviewed, including the business proposal, narrative of benefits, short- and long-term financial projections, and interim performance reports. Informal interviews were conducted with CPS leadership to understand the implementation process.
Results: The Joint IM-IR CPS introduced the following major structural changes: expanded full-time procedural staff trained by IR; centralized scheduling and image storage through existing IR structures; and dedicated IR suite for back-up and overflow coverage. Persuasive safety benefits delineated in the business proposal included: enhanced house-staff training in all departments through IR, decreased complications (defined by MHACS), and increased provider and patient satisfaction (measured by HCAHPS and internal surveys). Valued financial benefits included: decreased length-of-stay and decreased legal claims (estimated with historical cost data). To secure funding, the service's financial viability was demonstrated via comprehensive calculation of labor and non-labor costs, as well as a five-year budget plan accounting for variables over time such as high up-front costs, inflation, and increasing procedure demand.
Conclusions: Collaboration between IR and DOM can greatly improve outcomes and productivity of hospital bedside procedure services. Clear presentation of the benefits and financial requirements, both immediate and future, are key for obtaining institutional approval and funding for such services.

Abstract No. 626

Operational efficiency improvement following conversion of a fluoroscopy suite to hybrid computed tomography–angiography system

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Purpose: To evaluate the operational efficiency gained from conversion of a single interventional radiology suite to a hybrid CT-angiography (Angio-CT) system at a single academic tertiary care center.
Materials: The total number of interventional procedures and diagnostic CT exams performed in 29 rooms (20 DR, 7 IR, 2 shared between divisions) was calculated in the 24 months before conversion of an IR suite to Angio-CT and 12 months after conversion. This data was used to calculate the number of IR procedures (Global IR/month) and diagnostic CTs per month (Global CT/month) in both before and after conversion periods. The change in these values across time periods was calculated and defined as baseline institutional growth. Baseline institutional growth was then compared against the change in the number of IR procedures performed in the before and after periods in the converted room (Angio-CT/month) and the number of diagnostic CTs performed in the before and after periods in the shared rooms (Shared CT/month). The ratio of (Shared CT/Month):(Global CT/month) and of (Angio-CT/month):(Global IR/Month) was calculated and defined as the change in operational efficiency.
Results: Within these 29 rooms, 105,143 diagnostic CT scans and IR procedures were performed in the 24 months between March 2016 and February 2018, and 71,103 in the 12 months between March 2018 and February 2019. The percent change in Global CT and Global IR from the before to the after periods was 39.2% and 3.1%, respectively. Shared CT per month and Angio-CT per month increased by 46.7% and 12.0% across the same time periods, respectively. The ratio of the percent increase in Angio-CT per month to percent increase in Global IR per month, the change in IR operational efficiency, was 3.87. The ratio of the percent increase in Shared CT per month to percent increase in Global CT per month, the change in DR operational efficiency, was 1.19.
Conclusions: Improved operational efficiency within both diagnostic and interventional radiology was observed after conversion of a traditional IR suite to an Angio-CT system.

Abstract No. 627

So you want to increase your (patient) flow rate? An analysis of a 6-month experience in direct to patient internet marketing for prostate artery embolization

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Purpose: To analyze clinical outpatient consults and procedural volume of prostate artery embolization (PAE) postimplementation of a direct to patient internet marketing campaign.
Materials: A retrospective review of encounters resulting from an internet marketing campaign for BPH from March through September 2018 was performed. Encounters began with a lead generation form or phone call after a Google Ad click-through which terminated in an education page for benign prostatic hyperplasia (BPH) and PAE. Analysis determined demographics of these patients, previous urologic consultations, current urologic management, previous imaging, current IPSS/QOL scores, and ultimate patient management.

Results: A total of 82 patient leads were generated from this internet marketing campaign for BPH, resulting in 47 level 4/5 outpatient consults over a 6-month period. 14 patients underwent PAE to date with an additional 12 patients scheduled for the procedure. 39 of the 47 patients who received consultations were new to the hospital network. 33 advanced imaging studies were generated during the consultations. 9 patients were referred to in-network urologists for additional management or treatment options. Average age was 66.4 ± 8.9 years. Average distance from home to our institution was 36.0 ± 34.9 miles (range, 1-178). 62% of consults had a college education level with an additional 11% having had a postgraduate education. Average IPSS score was 21.7 ± 6.2 (range, 8-33) and average QOL score was 4.7 ± 1.1. The average prostate size (by imaging estimate) was 94 mL (range, 30-218).
Conclusions: A 6 month review of BPH consults and PAE performed demonstrates extremely effective utilization of direct to patient internet marketing, resulting in a marked increase in patient recruitment for PAE. Our pilot marketing demonstrates internet advertising campaigns can be effective for practice growth of prostate artery embolization.

Abstract No. 628

Active interventional radiology drainage catheter management reduces drain dwell time and increases percentage of drains removed by interventional radiology

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Purpose: To evaluate the effect of active inpatient and outpatient interventional radiology (IR) drainage catheter management on drain dwell time and percentage of drains removed by IR.
Materials: Retrospective review was performed of drains placed by IR at a tertiary medical center. Exclusion criteria were no documentation of removal, dwell time less than 1 day, and pediatric, seroma, urinoma, or enteric fistula drains. Data collected for the 283 eligible drains included dwell time, IR versus referrer removal, and IR documentation. Statistical analysis was used to compare IR drain management across three phases: passive (January – June 2016), active inpatient/passive outpatient (July 2016 – February 2017) and active all patients (March 2017 – June 2019). Management was still considered passive after June 2016 if drains were lost to IR follow-up or referrer removed without IR involvement.
Results: Active inpatient drain management during phase 2 led to a significant 5.6 day decrease in drain dwell time compared to passive management (mean, 12.8 vs. 21.1 days, $P < 0.01$). However, only 43% of drains were actively managed by IR. As a result, there was no significant change in the overall percentage of IR-removed drains compared to phase 1 (31 vs. 25%, $P = 0.42$). The inclusion of outpatients during phase 3 significantly increased overall active IR drain management (68% vs. 43%, $P < 0.01$) and percentage of IR-removed drains (61% vs. 31%, $P < 0.01$) compared to phase 2. There was also no significant adverse effect on dwell time with the addition of outpatients when compared to phase 2 (mean, 14.1 vs. 12.8 days, $P = 0.51$). For the entire 42 month analysis period, active IR drain management reduced mean drain dwell time by 4 days (13.7 vs. 17.7 days, $P = 0.01$) and more than doubled the percentage of IR-removed drains (61 vs. 25%, $P < 0.01$).
Conclusions: Active IR drainage catheter management significantly decreases drain dwell time and increases the number of drains removed by IR. Reduction of dwell time has clear value for patients but further study is required to determine if this dwell time reduction and increased IR removal of drains have additional clinical benefits such as avoidance of surgery or recurrent infection.

Abstract No. 629

Adverse event rates as a marker of quality in thoracenteses: is it feasible for use in a radiologic practice?

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Purpose: Quality improvement is a priority for many health care providers, hospitals, and policy makers. Many facilities utilize adverse event (AE) rates to monitor if standards are being met. The goal of this study was to assess whether adverse events are too sensitive to be used as a reliable quality measurement and if adverse event rates can be measured, how many observations are needed to identify a stable and trustworthy value.
Materials: Using archival data adults who underwent a thoracentesis were evaluated. Facilities that fell in the top and bottom 10% for procedural volume were analyzed. Utilizing the jackknife method, pneumothorax (PTX) rates were cross-referenced to analyze trends and to determine the stability of monitoring and measuring adverse event rates.
Results: There was a significant variance in confidence intervals between facilities that performed less than 155 thoracenteses/year, thus determining the PTX rates were too variable to reliably monitor from year to year. Practices that performed over 155 thoracenteses/year had less variances within their confidence intervals, indicating those practices could reliably monitor the trends associated with PTX rates.
Conclusions: Facilities that performed less than 155 thoracenteses/year had too much variability in PTX rates to confidently monitor trends and draw conclusions about AE rates. Practices that performed over 155 thoracenteses/year could examine the upward or downward trends over years but could not rely on a real time value with any certainty.

Abstract No. 630

Association of patient-specific factors and non-opioid analgesics on opioid use after uterine fibroid embolization

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