1. TOTALLY ROBOTIC ROUX-EN-Y GASTRIC BYPASS: WHEN TO CONVERT, LESSONS LEARNED FROM THE FIRST 75 PATIENTS. Ramzi S Alami, MD, Barry R Sanchez, MD, Geoff S Nadzam, MD, Catherine J Mohr, MS, Myriam J Curet, MD, Stanford University Medical Center, Stanford, CA.

Background:
We have previously described our technique for a Totally Robotic Roux-en-Y Gastric Bypass (TRRYGBP). We report lessons learned from our first 75 cases, regarding management of intra-operative problems specifically focusing on which problems require conversion to laparoscopic or open Roux-en-Y gastric bypass (RYGBP)

Methods:
75 patients underwent TRRYGBP between March 2004 and November 2005. We retrospectively reviewed their operative notes to evaluate complications, unexpected findings and management.

Results:
65 of the patients were women. Average age was 44 years (range 23-61) with a mean BMI of 49.5 kg/m2 (range 35.9-75.6).

Three patients required extensive adhesiolysis. This was performed laparoscopically prior to docking the da Vinci robot. Early in our experience, one patient was converted to a laparoscopic RYGBP because of an abdominal wall fold at the level of the lower ports limiting our ability to maneuver the instruments as needed. Since then, we either move the ports or flex the patient to avoid the abdominal wall folds. Two patients had staple line disruptions, which were repaired robotically without sequelae. The gastro-jejunostomy was revised robotically in one patient because the anastomosis was occluded. Midgut malrotation was recognized in one patient, but the procedure was completed robotically. Finally two patients were converted to open RYGBP because of hepatomegaly and inability to expose the gastro-esophageal junction.

Conclusion:
The da Vinci robotic system allows increased flexibility in dealing with unexpected findings or complications in the performance of TRRYGBP without the need for conversion to open or laparoscopic RYGBP.

2. BAND VS. BYPASS: INFLUENCE OF AN EDUCATIONAL SEMINAR AND THE SURGEON VISIT ON PATIENT PREFERENCE. Raymond J Taddeucci, MD, Atul K Madan, MD, Whitney S Orth, MS, RD, David S Tichansky, MD, University of Tennessee Health Science Center, Memphis, TN.

Background:
Laparoscopic gastric bypass (LGBP) and laparoscopic adjustable gastric banding (LAGB) are two common weight loss procedures. Which procedure a patient undergoes is theoretically based on their preference. This investigation examines the effect of a preoperative educational seminar (ES) and a bariatric surgeon visit (SV) on a patient's decision regarding bariatric procedure choice.

Methods:
In our practice, new patients are given a general overview of both procedures in an ES which includes risks, benefits, and effectiveness of each procedure. During the SV, patients meet individually with a surgeon when further questions are answered on the same day as the ES. The ES and SV are not biased towards the LGBP or LAGB unless there is a medical contraindication to either. Three identical surveys were given to each new patient who participated in the study. One was given before the ES (BES), one after the ES (AES), and one after the SV (ASV). The survey asked questions regarding procedure choice and influencing factors.

Results:
There were 47 patients in this study of which 31 (66%) stated they had researched the procedures in the BES. Uncertainty of the differences in the two procedures decreased with each survey: BES: 13 (28%), AES: 2 (4%), vs. ASV 1 (2%); $p < 0.0001$. Procedure preference (LGBP, LAGB, vs. undecided) did not significantly change between the surveys (BES: 45%, 49% vs. 6%; AES: 47%, 47%, vs. 6%; ASV: 51%, 43%, vs. 6%; p = NS). However, 11% of patients changed their procedure choice as a result of the ES and SV. The top 3 reasons for deciding LGBP were "more overall weight loss" (92%), "quicker weight loss"

(79%), and “I felt it was better for me” (75%). The top reasons for deciding LAGB were “low risk of surgery” (85%), “quicker recover” (80%), and “I felt it was better for me” (75%). Only 15% percent of patients were willing to be randomized to either LGBP or LAGB for the BES, 13% for the AES, and 13% for the ASV.

Conclusion:
The combination of attending an ES and the SV provides additional information to help the patient differentiate the two procedures. However, the patient’s decision is usually made prior to the ES and SV. The ES and SV tend to simply be utilized by the patients to reinforce their prior made decision. Few patients are willing to be randomized to band versus bypass.

3. PERIO-OPERATIVE TIGHT GLYCEMIC CONTROL: THE CHALLENGE OF BARIATRIC SURGERY PATIENTS AND THE FEAR OF HYPOGLYCEMIC EVENTS. Bellal Joseph, MD, Ilan Rubinfeld, MD, Jeff Genaw, MD, Art Carlin, MD, Jean Talley, RN, Jack Jordan, , Wanda Szymanski, RN, H M Horst, MD, Mary-Margaret Brandt, MD, William Conway, MD, Scott Dulchavsky, MD, PHD, Henry Ford Hospital, Detroit, MI.

Background:
Tight glycemic control (TGC) has become a standard of inpatient care. Fear of hypoglycemia has proven a potent barrier to wide adoption of such initiatives. Our institution has pursued aggressive glycemic control for all hospital patients. Yet, the initial standard protocol did not significantly change population glucose measurements. We hypothesized that a more intensive protocol would be necessary to improve glycemic control in these patients and further improve outcomes.

Methods:
As part of an institutional quality project involving TGC, we reviewed the bariatric surgery patients at Henry Ford Hospital. We divided the populations into three subgroups: prior to TGC (A), initial TGC hospital roll-out (B), and increased protocol for bariatrics (C). Patient populations were compared using administrative databases and clinical review. Metrics for successful glycemic control (process outcomes) included: percent hypoglycemia (glucose <50), in range percent (80-150), moderate high (>150), major high (>250).

Results:
The results for the three groups are summarized in the table below. Although percent in-range reached a very impressive level for a non-drip TGC protocol it was not statistically different from controls. The number of high reading was significantly improved both at the 150 and 250 level p=.0001. This came with no significant increase in hypoglycemia.

Conclusion:
As an ongoing quality process our institution has pursued tight glycemic control for all of its patients. Bariatric patients have proven harder to control and required further modification of our TGC protocols. By utilizing an increased TGC protocol, we have successfully and safely demonstrated improvement in glycemic control without increasing hypoglycemic events.

	AvgOf<50	AvgOf80-150	AvgOf>150	AvgOf>250
Group A (pre-TGC)	0.27%	63.76%	31.02%	3.89%
Group B (hospital roll-out TGC)	0.22%	63.39%	27.43%	2.08%
Group C (Bariatric Protocol)	0.31%	70.87%	19.78%	1.09%
	p = 0.939	p = 0.271	p < 0.001	p < 0.001

4. CALCIUM, PARATHORMONE, AND VITAMIN-D ABNORMALITIES AMONG ROUX-EN-Y GASTRIC BYPASS PATIENTS. Kumuda R Pradhan, MD, Christopher J Larson, PA-C, RD, Michelle A Mathiason, MS, Pamela J Lambert, RN, Matthew T Baker, MD, Shanu N Kothari, MD, Gundersen Lutheran Medical Center, La Crosse, WI.

Background:
Malabsorption of vitamin D and calcium is a known side effect of laparoscopic gastric bypass (LGBP). Our objective was to identify the prevalence of abnormalities in calcium, parathormone (PTH), and 25-hydroxy vitamin D levels in patients undergoing LGBP.

Methods:
Patients undergoing LGBP from September 2003 through June 2004 were included. Calcium and PTH levels were obtained preoperatively. At 1 year postoperatively, calcium, PTH, and vitamin D levels were obtained. Laboratory values were classified as low, normal, or high, based on standard reference ranges. Results were analyzed using the exact binomial test.

Results:
One-year follow-up laboratory data was available for 70 patients: 10 males and 60 females with a mean age of 44.7 years. The mean preoperative body mass index was 47.4 kg/m^2. Mean percent excess weight loss at 1 year was 73.4%.

Preoperative laboratory values

	N Low (%)	Normal (%)	High (%)
PTH	63.2 (3.2)	52 (82.5)	9 (14.3)*
Calcium	64.1 (1.6)	63 (98.4)	0 (0)

Laboratory values 1 year after LGB

	N Low (%)	Normal (%)	High (%)
PTH	68.0 (0)	61 (89.7)	7 (10.3)*
Calcium	70.0 (0)	69 (98.6)	1 (1.4)
5-hydroxy vitamin D	57.2 (40.4)*	34 (59.6)	0 (0)

* p-value ≤0.001

Conclusion:
A significant percentage of patients undergoing LGBP present with an abnormally high PTH level. Abnormally low vitamin D levels are quite prevalent 1 year after LGBP, despite normal serum calcium levels. Long-term studies are necessary to evaluate the impact of vitamin D deficiency and elevated PTH levels on bone density.

5. ROUTINE UPPER GI SERIES FOLLOWING GASTRIC BYPASS DOES NOT ACCURATELY IDENTIFY LEAKS OR PREDICT STRICTURES. Jonathan T. Carter, MD, Sepideh Tafreshian, MD, Umesh Tiwari, MD, Fernando Herbella, MD, John P. Cello, MD, Marco G. Patti, MD, Guilherme M. Campos, MD, Stanley J. Rogers, MD, Andrew M. Posselt, MD, UCSF, San Francisco, CA.

Background:
Most centers performing Roux-en-Y gastric bypass for morbid obesity obtain a routine upper GI series (UGI) in the early postoperative period to evaluate for anastomotic leaks and delayed pouch emptying. We hypothesized that routine UGI does not accurately identify leaks or predict strictures.

Methods:
From December 1998 to April 2005, 569 gastric bypass procedures were performed at our center (60% laparoscopically). Routine UGI was obtained in 546 (96%) patients. We compared radiographic findings

(leak or delayed emptying) with patient outcome (leak or stricture) to calculate the sensitivity and specificity of the study. Univariate modeling identified risk factors for anastomotic leak or stricture; the low number of events precluded multivariate modeling.

Results:
Of 546 routine UGI studies, anastomotic leaks were reported in 5 (0.9%); 2 of these were later interpreted as artifact. UGI failed to identify 3 leaks, yielding an overall sensitivity of 50% and PPV of 60%. In univariate analysis, only institutional experience was associated with anastomotic leak (odds-ratio (OR) 6.5 for the first 100 cases, p=0.02). Delayed emptying of contrast was observed in 109 (19%) studies, was more frequent in laparoscopic cases (26.8% vs. open 9.0%, p<0.01) and when a GIA stapler was used for the gastrojejunostomy (31.7% vs. EEA 13.6%, hand-sewn 18.9%; p=0.01). Only 10 (1.7%) patients developed strictures requiring dilatation. The PPV of delayed contrast emptying for eventual stricture formation was 6%. Risk factors for stricture formation included stapled anastomosis (OR 9.4, p<0.01), long Roux length (>100cm OR 5.4, p=0.03), antecolic Roux (OR 10.2, p=0.03), and delayed contrast emptying (OR 6.3; p<0.01).

Conclusion:
Due to the overall low incidence of complications and low sensitivity/specificity, routine UGI does not accurately identify leaks or predict strictures after Roux-en-Y gastric bypass. A selective approach, reserved for patients with clinical evidence of leak or stricture, is more appropriate and cost-effective.

6. SELECTIVE USE OF UPPER GASTROESOPHAGEAL IMAGING AFTER LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS IS SAFE. Stephen White, MD, Soo Hwa Han, MD, William Bertucci, MD, Kevin Patel, MD, Brad McEvoy, MS, Douglas Russell, BA, Barbara Kadell, MD, Carlos Gracia, MD, Erik Dutson, MD, Amir Mehran, MD, David Geffen School of Medicine at UCLA, Los Angeles, CA.

Background:
Many institutions routinely study their post laparoscopic Roux-en-Y gastric bypass (LRYGBP) patients with an upper gastroesophageal imaging study (UGI). We recently abandoned this practice. We discovered that routine imaging did not contribute significantly to patient care. The purpose of this study was to determine whether patient outcomes were affected by this protocol change.

Methods:
From March 2004 to September 2005, 508 antecolic LRYGBP were performed at our institution. Linear cutting staplers were used to create both anastomoses. 314 cases were done subsequent to our change in protocol. The rest had undergone routine postoperative UGI testing. Patient demographics, length of hospital stay, and complications were prospectively recorded in our bariatric database and reviewed retrospectively.

Results:
204 patients underwent UGIs postoperatively. Of these, 194 were studied routinely and 10 after the protocol change due to clinical indications including persistent nausea and vomiting, abdominal pain, and unexplained tachycardia. No obstructions or leaks were found. 304 patients were safely discharged without an UGI series. Of those, one patient returned at three months with a jejuno-jejunostomy stricture. No statistically significant differences were found between the two groups.

Conclusion:
Our study confirms our previous findings that routine post-LRYGBP UGI studies are unnecessary. Unless clinically indicated, they can be safely eliminated.

7. SELECTIVE, VERSUS ROUTINE, UPPER G.I. SERIES LEADS TO EQUAL MORBIDITY AND REDUCED HOSPITAL STAY IN LAPAROSCOPIC GASTRIC BYPASS PATIENTS. Sophia D. Lee, MD, Magued N. Khouzam, MD, John M. Kellum, MD, Eric J. DeMaria, MD, Luke G. Wolfe, MS, James W. Maher, MD. Virginia Commonwealth University, Richmond, VA.

Background:
The use of routine upper GI series (UGI) after laparoscopic gastric bypass surgery (LGBP) entails risk, expense and patient discomfort. We have discontinued routine UGI in favor of selective UGI guided by

symptoms or elevations in juxta-anastomotic drain amylase. We hypothesize that elimination of routine UGI does not adversely affect morbidity or mortality.

Methods:
We reviewed hospital stay, anastomotic leak rate, re-operation, and death rate in all patients who underwent LGBP between two time periods when either routine UGI (1/04-9/04) or selective UGI were done (1/05-9/05) postoperatively.

Results:
There were 213 patients during 1/04-9/04 (Group I) and 99 patients who underwent LGBP during 1/05-9/05 (Group II). Mean (+/- SEM) hospital stay for group I and II was 4.3 (+/- 0.3) and 3.4 (+/- 0.2) days (p=NS), respectively. There were 13 G-J leaks (6.1%) in group I and 5 G-J leaks (5.0%) in group II (p=0.8). Ten patients (4.7%) in group I required re-operation for anastomotic leak and two patients (2.0%) in group II (p=0.35). There were two deaths (0.9%) in group I and no deaths in group II (p=1.0).

Conclusion:
Elimination of routine upper GI studies has not adversely affected morbidity or mortality. Mean hospital stay with selective UGI has decreased although this decrease has not yet achieved statistical significance.

8. NOVEL PREDICTORS OF NASH IN OBESE PATIENTS UNDERGOING BARIATRIC SURGERY. Brandon Williams, MD, Judith H. Hagedorn, BS, Ramzi S. Alami, MD, Elise H. Lawson, BS, Betsy E. Encarnacion, BS, Rob Schuster, MD, Myriam J. Curet, MD, John M. Morton, MD,MPH, Stanford University, Stanford, CA.

Background:
Non-alcoholic steatohepatitis (NASH) is an advanced form of nonalcoholic fatty liver disease that can lead to liver failure. NASH is strongly associated with morbid obesity and metabolic syndrome. The aim of our study was to determine predictors of NASH.

Methods:
We obtained intra-operative liver biopsies in 50 laparoscopic bariatric surgery patients. We assessed potential predictors of liver pathology such as alcohol use, hypertension (HTN), liver function tests, hepatitis serologies, and biochemical cardiac risk factors pre-operatively. These risk factors included high-density lipoprotein (HDL) cholesterol, triglycerides (TRG), C-reactive protein (CRP) and a novel marker of insulin resistance, ratio of triglycerides to HDL (MET). We categorized the liver pathologies into three groups: normal, steatosis, and NASH. The data were analyzed by ANOVA procedure.

Results:
Patient demographics were mean age, 45; female, 88%; mean BMI, 47; diabetic, 38%; hypertensive, 68%; and hepatitis or alcohol abuse, 0%. Liver biopsy results were normal (12%), steatosis (58%), and NASH (30%). There were significant differences in liver pathology predictors between patients with normal versus NASH liver biopsy results. These differences are as follows, liver pathology predictor (normal/NASH): HTN, % (50/73), AST (27/46), ALT (25/60), TRG (126/177), CRP>3, % (67/93), MET (2.8/6.4).

Conclusion:
In this study, significant differences in pre-operative characteristics exist between patients with normal versus NASH liver biopsy results.

9. OUR FIRST 100 LAPAROSCOPIC ADJUSTABLE GASTRIC BANDS: AN AMERICAN EXPERIENCE. Cory J. Vatsaas, BBMEn, Guilford Hartley, MD, Howard M. Lederer, MD, Hennepin County Medical Center, Minneapolis, MN

Background:
The Laparoscopic Adjustable Gastric Band (LAGB) is a surgical therapy for morbid obesity that is gaining in popularity world-wide. We began offering the LAGB to our bariatric patients in May 2004. A single, fellowship trained bariatric surgeon performed all procedures.

Methods:
We used a real-time, Internet-enabled database (Minnesota Database of Bariatrics) to retrospectively track outcomes of our first 100 LAGB patients. Our surgical technique was the *pars flacida* approach with adjustments performed algorithmically.

Results:
83.5% of our patients were female with an average age of 43.4 (19-72) years and an average BMI of 47.8 (35.2-71.0) kg/m^2. The %EWL at one year was 40.4%. Co-morbidities improved or resolved in 62% (type 2 diabetes), 58% (GERD), 43% (hypertension), 46% (sleep apnea) and 44% (osteoarthritis) of patients followed out to one year. Average operative time was 70.7 (29-157) minutes with 85% of our patients going home within one day. 54% of the bands used were 10cm and 46% were 11cm. There were no conversions to an open technique with no deaths. Complications included two slips (prolapse), one port site infection, one splenic laceration not requiring splenectomy, one episode of gastroparesis treated with nasogastric suction, and one band undersizing requiring laparoscopic switch to a larger band. Additional procedures included hiatal hernia repair (1), para-esophageal hernia repair (1), cholecystectomy (1), ventral hernia repair (1), and umbilical hernia repair (1).

Conclusion:
Initial results show significant weight loss with reductions in associated co-morbidities, but further longitudinal data collection will be necessary to assess long-term outcomes of the LAGB.