

Robotic Roux en Y gastric bypass can be safe and cost-effective in a community hospital: a retrospective cohort study of clinical outcomes and financial analysis

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INTRODUCTION

- Robotic Roux en Y gastric bypass (R-RYGB) is becoming a more frequent metabolic operation thanks to the shifting trend toward robotic complex gastrointestinal surgery, both in the academic and in the community hospital environments

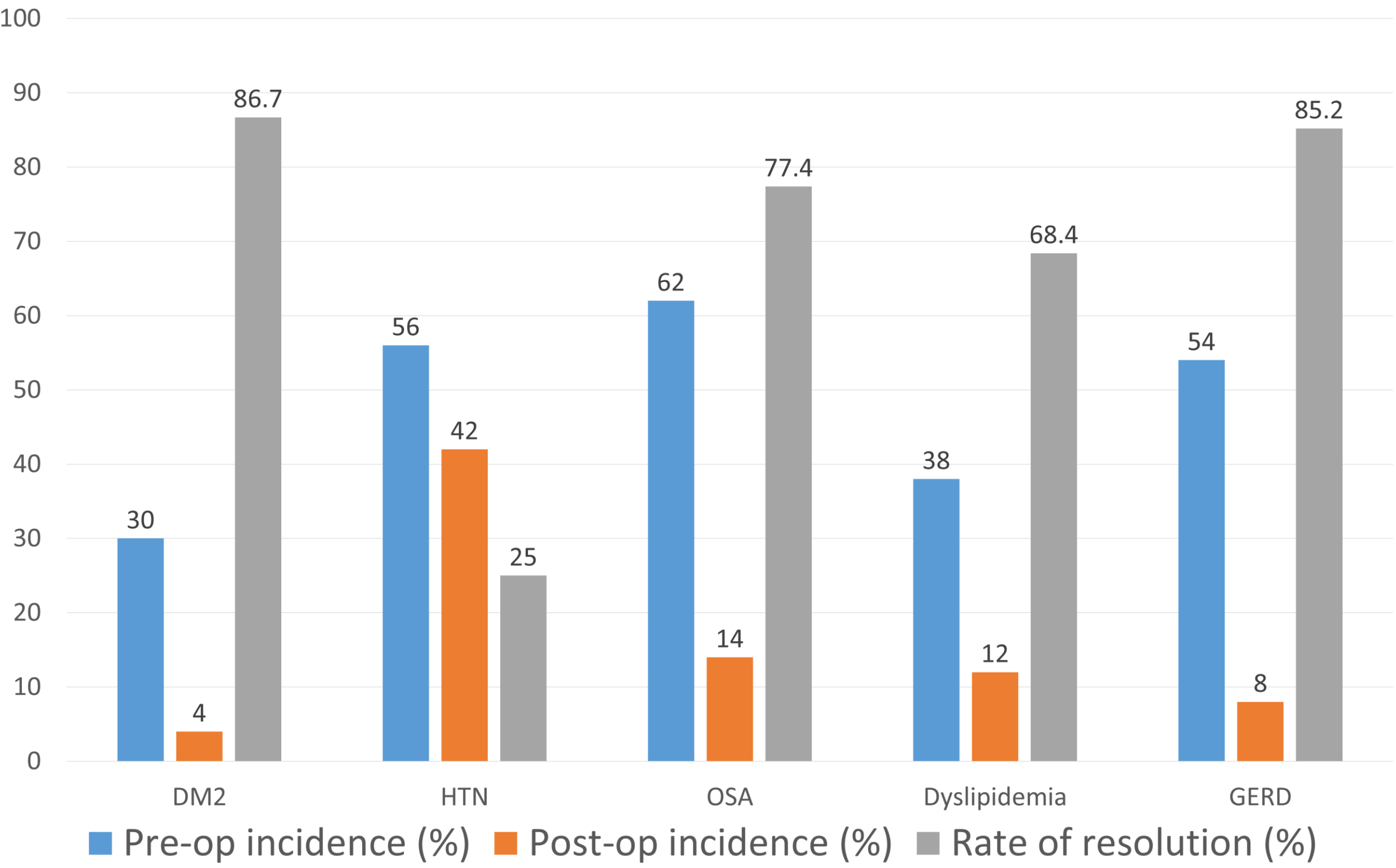
HYPOTHESIS

- R-RYGB can be safely implemented at a robotic bariatric surgery program in a community hospital with similar results to laparoscopic Roux en Y gastric bypass (L-RYGB) in a cost-effective manner, with intensive team training and quality review

METHODS AND PROCEDURES

- A total of 50 R-RYGB procedures were performed with the Xi and the X da Vinci systems and compared with 50 L-RYGB cases by a single surgeon from October 2018 to January 2020 at an acute care community hospital with a high-volume MBSAQIP-accredited metabolic and bariatric program
- A retrospective chart review was conducted with IRB approval with statistical analysis of outcomes including 30-day morbidity, mortality, re-interventions, and resolution of co-morbidities, as well as a financial analysis of cost reduction
- Chi-square test or Fisher's exact test were used for categorical variables, and Student's t-test was used for continuous variables
- Statistical programming language R and SAS were used to perform the data analysis

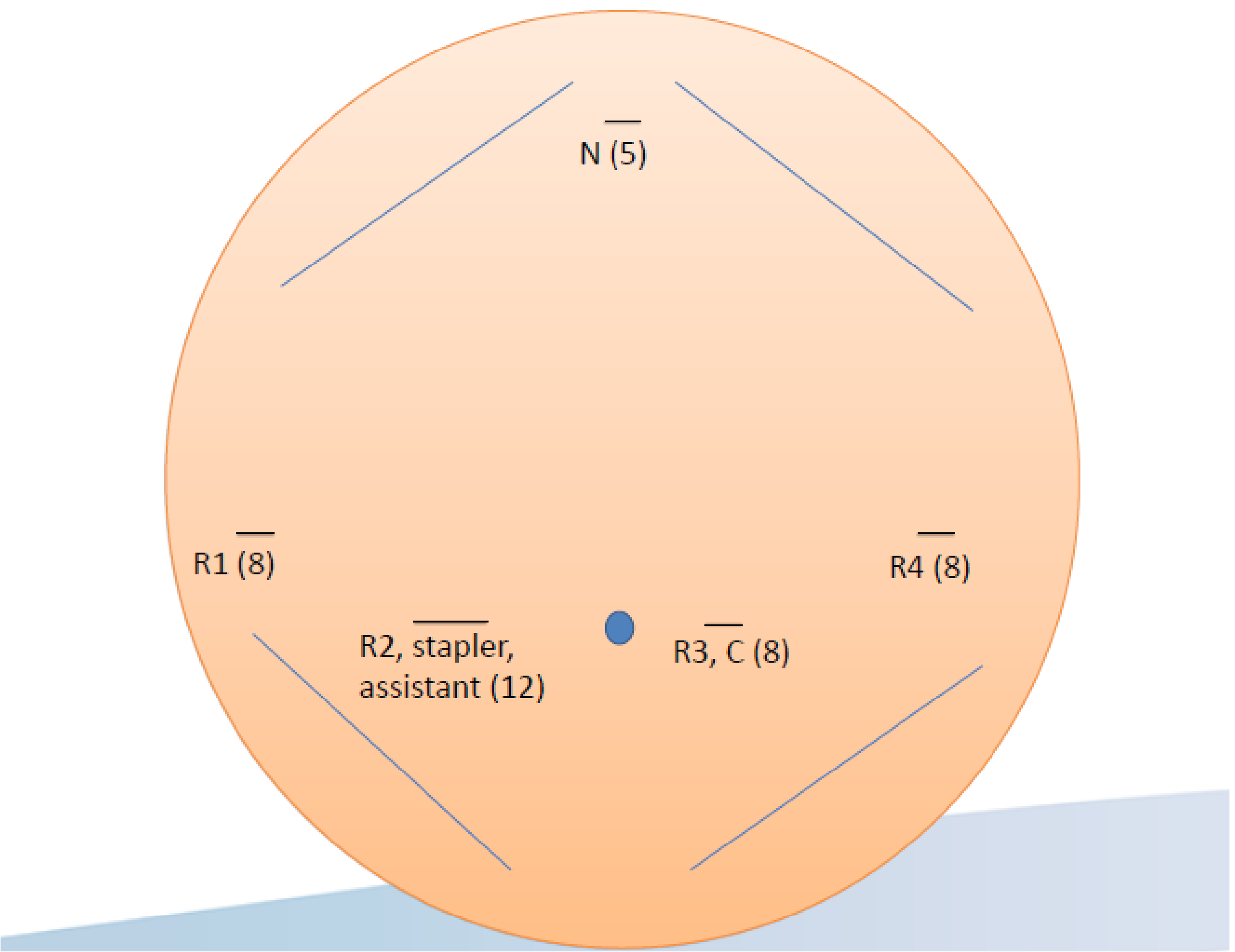
Co-morbidities for R-RYGB cohort: incidence and resolution



Absence of complications per group: R-RYGB vs L-RYGB

No incidence in R-RYGB	No incidence in L-RYGB	No incidence in either
•GJ stricture requiring surgical revision •Abdominal wall seroma •Abdominal wall hematoma •C diff colitis •Infusion center visit for dehydration	•Intraabdominal bleeding •Intraluminal bleeding	•Anastomotic leak •Conversion to open •Blood transfusion •DVT/PE •Superficial SSI

Port placement for R-RYGB: Xi and X systems
(15-mL gastric pouch, 50 cm biliopancreatic limb, 150 cm Roux limb)



30-day outcomes: R-RYGB vs L-RYGB

	R-RYGB (n = 50)	L-RYGB (n = 50)	p-value	Test
Mean intra-operative time	121.94 ± 29.05 min	113.52 ± 28.32 min	0.1495	t-test
Mean EBL	26.60 ± 10.51 mL	27.70 ± 14.53 mL	0.6687	t-test
Mean length of stay	2.22 ± 1.19 days	2.32 ± 1.19 days	0.6782	t-test
Post-op endoscopy	5 (10%)	8 (16%)	0.5536	Fisher exact
30-day morbidity	5 (10%)	8 (16%)	0.5536	Fisher exact
Marginal ulcers	5 (10%)	8 (16%)	0.5536	Fisher exact
30-day ED visits	8 (16%)	14 (28%)	0.2274	Chi-square

RESULTS

- Both groups were similar in terms of age, gender, pre-operative co-morbidities, and BMI. There was no mortality or anastomotic leak. The 30-day morbidity for R-RYGB was 10.0% with a re-operation rate of 4.0%. There were no conversions to open, and the mean hospital length of stay was 2.22 ± 1.19 days
- There were no statistically significant differences between R-RYGB and L-RYGB with respect to any measured outcome, including intraoperative time (121.94 vs 113.52, respectively; p = 0.1495). The mean BMI for R-RYGB decrease was 8.68 ± 5.11 BMI points corresponding to a mean follow-up of 4.53 ± 3.63 months. The morbidity results are statistically similar for the two groups. However, when incidences and percentages are used, R-RYGB has lower percentages for most of the outcomes measuring safety
- There was an average cost reduction of \$816.90 per case (total saving of \$40,845.00 for 50 cases) in the R-RYGB group by transitioning from a hybrid robotic approach with laparoscopic stapling to a totally robotic approach with robotic stapling and a hand-sewn gastrojejunostomy

CONCLUSION

- By emphasizing quality control, team training and mastery of the learning curve, R-RYGB is as safe as L-RYGB and can be performed in a community hospital setting while maintaining a low complication rate, achieving a high co-morbidity resolution rate, and saving costs with a totally robotic approach

