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# Characterizing the preventable emergency department visit after bariatric surgery

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**Abstract**

**Background:** Patients who present to the emergency department (ED) after bariatric surgery may incur significant costs with no additional benefit.

**Objectives:** To characterize patients who presented to the ED but could have been treated in an alternative setting.

**Setting:** University hospital, United States.

**Methods:** We identified 131 patients who underwent primary bariatric surgery at a single-center academic institution between 2006 and 2016 who also presented to the ED within 30 days of surgery. Preventable ED visits were identified by excluding patients with life-threatening presentations and/or use of emergent ED-specific resources. Patients with preventable ED visits were matched 1:1 to controls (no ED visit) based on procedure type and preoperative patient characteristics. Independent risk factors among patients with preventable ED visits were identified.

**Results:** A total of 80 patients (61%) were identified as having a preventable ED visit after bariatric surgery. After multivariable logistic regression, independent risk factors associated with preventable ED visits included anxiolytic prescription at discharge (odds ratio [OR] 5.4 [95% confidence interval 1.6–18.6]; $P = .007$), electrolyte abnormalities (OR 4.3 [1.9–9.6]; $P < .0001$), and leukocytosis (OR 2.2 [1.0–4.9]; $P = .048$) at discharge, and number of ED visits preoperatively (OR 2.0 [1.3–3.1]; $P = .001$). Severe complications, reoperation rates, and 1-year patient reported outcomes did not differ between patients with preventable ED visits and their matched cohort.

**Conclusions:** Preventable ED visits are common after bariatric surgery and are associated with risk factors that can be identified perioperatively. Identifying and triaging patients at risk for preventable ED visits may decrease unnecessary and costly visits to the ED after bariatric surgery. (Surg Obes Relat Dis 2019;■:1–8.) 

*Key words:* Bariatric surgery; Metabolic surgery; Resource utilization; Healthcare policy; Preventable emergency department visit

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As the obesity epidemic continues, bariatric surgery utilization has increased because it remains the most effective treatment for severe obesity and its associated comorbidities [1,2]. In the era of minimally invasive surgery, bariatric surgery has a low rate of severe adverse events, ranging from 1.6% to 3.5% across hospitals [3]. However, postsurgical patients may present to the emergency department (ED) in proportions that are higher than their expected rate of severe complications [4]. Despite the low complication profile, upward of 10% to 12% of patients visit the ED within 30 days of surgery and as much as 14% to 47% of those visits may be preventable [4–7]. Nonurgent presentation to the ED results in higher resource utilization and lower patient satisfaction [8,9]. As a result, postsurgical presentation to the ED is becoming an important metric for hospitals aiming to improve postoperative care [6].

Although patients who experience severe complications after bariatric surgery may require advanced testing, monitoring, and treatment (i.e., reoperation or endoscopy) that can only be provided in the inpatient setting, postsurgical patients may also experience symptoms that can be addressed without the high resource utilization associated with an ED visit [7,10]. To date, assessments of ED visits after bariatric surgery have not addressed how to identify patients with low-acuity complaints, and there is no data-driven tool that helps predict which patients are at risk for a preventable ED visit [11].

In this regard, our goal was to identify patients with preventable ED visits after bariatric surgery using data from a single-center academic bariatric surgery program. Furthermore, by using a control group of similar patients who did not present to the ED, we aimed to identify factors that can predict patients who may be at high risk for using ED resources unnecessarily and who may benefit from alternative treatment strategies.

## Methods

### *Data source*

This study was based on the analysis of patient data collected from a single-center academic bariatric surgery program. Data were extracted for all patients within the bariatric surgery program using the electronic medical record. This research was approved by the institutional review board and was in compliance with the Health Information Portability and Accountability Act.

### *Study population, design, and data collection*

From 2006 to 2016, we identified 131 adult patients (>18 yr of age), from a total of 1572 operations, who presented to

| Severity of clinical presentation | | Intervention | |
|---|---|---|---|
| A criteria | B criteria | C criteria | D criteria |
| Hypotension<br>hypoxia<br>Trauma<br>SI | Temperature (>38°C [100.4°F] or<36°C [96.8°F])<br>Tachycardia (>90 beats/min)<br>WBC (>12,000/μL or<4000/μL,>10% bands)<br>Tachypnea (>20 breaths/min or PaCO<32 mm Hg) | TPN<br>DHT/TFs<br>IV heparin<br>blood products<br>IVC filter<br>intubation/MV<br>acute dialysis | IR procedure<br>Endoscopy<br>Surgery<br>IV antibiotics |

1. One or more from A criteria; or
2. Two or more from B criteria; or
3. One or more from C criteria; or
4. One or more from B criteria and one or more from D criteria

Fig. 1. Nonpreventable versus preventable emergency department visit criteria. SI = suicidal ideation; WBC = white blood cell; TPN = total parenteral nutrition; DHT = DobbHoff tube; TF = tube feeds; IV = intravenous; IVC = inferior vena cava; MV = mechanical ventilation; IR = interventional radiology.

Table 1
Matching criteria

| Characteristic | Patients with preventable ED visit (n = 80) | Controls (n = 78) | *P* value ($X^2$/*t* test) |
|---|---|---|---|
| Surgeon | | | |
| A | 16 (20.0) | 16 (20.5) | .9366 |
| B | 20 (25.0) | 20 (25.6) | .9265 |
| C | 22 (27.5) | 19 (24.4) | .6536 |
| D | 22 (27.5) | 23 (29.5) | .7824 |
| Sex | | | |
| Male | 11 (13.8) | 11 (14.1) | .9495 |
| Female | 69 (86.3) | 67 (85.9) | .9495 |
| Procedure type | | | |
| RYGB (%) | 45 (56.3) | 43 (55.1) | .8877 |
| SG (%) | 34 (42.5) | 34 (43.6) | .8903 |
| LAGB (%) | 1 (1.3) | 1 (1.3) | .9866 |
| Age | 43.50 (12.2) | 43.8 (10.8) | .866 |
| BMI | 48.01 (8.6) | 47.90 (8.2) | .933 |
| Operative date* (SD) | 18,929 (1017) | 18,959 (1003) | .853 |

RYGB = Roux-en-Y gastric bypass; LAGB = laparoscopic adjustable gastric banding; SG = sleeve gastrectomy; BMI = body mass index; SD = standard deviation.

* Represents number of days from January 1, 1960 to date of surgery.

the ED within 30 days of undergoing a primary laparoscopic sleeve gastrectomy, Roux-en-Y gastric bypass, or adjustable gastric banding. Among these patients, we identified patients who presented to the ED with nonurgent or nonsevere conditions (i.e., preventable ED visits), based on exclusion criteria summarized in Fig. 1. Patients who failed to experience signs of sepsis or shock and did not need parenteral nutrition, dialysis, systemic anticoagulation or antibiotics, blood products, intubation, or reintervention (i.e., surgery, endoscopy, or interventional radiology) were considered to have a preventable ED visit. In addition, a control group of patients (i.e., no ED visit) was matched to the study group (i.e., preventable ED visit) based on age, sex, body mass index, surgeon, and procedure type. We matched timing of operation using integer values that represent the number of days from January 1, 1960 to the mean operative date (Table 1).

Data from all patients in both the preventable ED group and control group were obtained from the electronic medical record. Preoperative variables collected included age, sex, body mass index, race, insurance, employment status, distance from hospital, and preoperative ED utilization behavior. Comorbidities including cardiovascular disease, hypertension, hyperlipidemia, diabetes, obstructive sleep apnea (OSA), gastroesophageal reflux disease, asthma, liver disease, kidney disease, mobility limitations, psychologic disorders, and smoking status were also catalogued. Operative data gathered encompassed the type of procedure, surgeon, operative time, and time of day when surgery was performed. Postoperative variables collected included length of stay, laboratory values, active prescriptions at discharge, and provider performing discharge education. Data extracted from each ED visit for each patient included the chief symptom and final diagnosis, vital signs, and any intervention performed while in the ED and as an inpatient if admitted. Finally, postoperative complications were captured within the first 30 days of surgery and included bowel obstruction, leak, abdominal abscess, wound complication, dehiscence, hemorrhage, venous thromboembolism, myocardial infarction or cardiac arrest, renal failure, pneumonia, reintubation, prolonged ventilator use, shock, hospital-acquired infections, and death. Severe complications were defined as potentially life-threatening complications, including those that required invasive interventions such as percutaneous drainage or reoperation, blood transfusions of $\geq$4 units, respiratory failure requiring $>$2 days of intubation, renal failure requiring in-hospital or long-term dialysis, venous thromboembolism, myocardial infarction or cardiac arrest, and death. Postoperative readmissions and reoperations were also captured at 30 days. Patient-reported weight loss, discontinuation of medication for hyperlipidemia, diabetes (oral medication and/or insulin) and hypertension, and discontinuation of continuous positive airway pressure for OSA were captured at 1 year after surgery.

### *Statistical analysis*

The primary goal of this study was to identify preventable ED visits among patients undergoing bariatric surgery. Secondary outcomes included comparing patient variables

Table 2
ED utilization by postsurgical patients

| Number of postoperative patients | n (%) |
|---|---|
| Total ED visit | 131 (100) |
| Preventable ED visit | 80 (61.0) |
| ED visit to OSH | 11 (8.4) |

ED = emergency department; OSH = outside hospital.

Table 3
Preoperative and operative characteristics

| Demographic | Patients with preventable ED visit (n = 80) | Controls (n = 78) | *P* value ($X^2$/*t* test) |
|---|---|---|---|
| Insurance payor | | | |
| Private insurance, % | 88.8 | 92.3 | .4467 |
| Medicaid, % | 5.0 | 6.4 | .7031 |
| Medicare, % | 6.3 | 1.3 | .1033 |
| Race and ethnicity | | | |
| White or Caucasian, non-Hispanic, % | 80.0 | 84.6 | .4485 |
| Black, % | 13.8 | 12.8 | .8637 |
| Other (Hispanic, Asian, Native Hawaiian/ Pacific Islander, American Indian/ Alaskan Native, other, or multiracial), % | 6.3 | 2.6 | .2612 |
| Working part- or full-time; % | 66.2 | 76.6 | .1641 |
| Unemployed or on disability; % | 23.5 | 23.4 | .8927 |
| Retired, % | 10.3 | .00 | .0086 |
| Distance from , miles, mean (±SD) | 38.9 (57.9) | 31.9 (34.5) | .3599 |
| No. of ED visits within 2 yr of surgery | 1.5 (2.5) | .3 (.7) | .0001 |
| Number of ED visits after 30 d of surgery with 2-yr follow-up | 2.3 (±3.6) | .8 (2.0) | .0010 |
| Co-morbidity | | | |
| Smoking | | | |
| History of smoking, % | 26.3 | 42.3 | .0339 |
| Current smoking, % | 5.0 | 5.1 | .9705 |
| CVD, % | 51.3 | 56.4 | .5167 |
| Hypertension, % | 48.8 | 44.9 | .6262 |
| Hyperlipidemia, % | 47.5 | 59.0 | .1499 |
| Diabetes, % | 36.3 | 43.6 | .3477 |
| OSA, % | 63.8 | 47.4 | .0397 |
| GERD, % | 55.0 | 47.4 | .3434 |
| Asthma, % | 33.8 | 23.1 | .1386 |
| Liver disease, % | 22.5 | 10.3 | .0386 |
| Kidney disease, % | 1.3 | 1.3 | .9866 |
| Mobility limitation, % | 5.0 | .0 | 0.0462 |
| Psychological disorder, % | 76.3 | 64.1 | .0959 |
| Total number of co-morbidities, mean (±SD) | 7.7 (3.7) | 7.1 (3.7) | .292 |
| Operative characteristics | | | |
| Operative time, min, mean (±SD) | 139.8 (102.8) | 123.2 (56.7) | .213 |
| Surgery done before 12:00 PM, % | 39.3 | 50.0 | .1764 |
| Surgery done between 12:00 PM and 5:00 PM, % | 48.1 | 42.3 | .4675 |
| Surgery done after 5:00 PM, % | 12.7 | 7.7 | .3049 |

ED = emergency department; SD = standard deviation; CVD = cardiovascular disease; OSA = obstructive sleep apnea; GERD = gastroesophageal reflux disease.

among patients with preventable ED visits and matched controls. Univariate analysis and multivariable regression were performed to identify factors predictive of a preventable ED visit. Sample characteristics are presented as means ± standard deviations or medians with interquartile ranges as appropriate for continuous variables and frequencies and percentages for categorical variables. Individual univariate comparisons for continuous variables were compared (surgery: 1 = yes, 0 = no) via independent samples *t* test or Mann-Whitney *U* tests, and categorical variables were compared by using Pearson $\chi^2$ tests or Fisher's exact test as appropriate. Variables found to be significant at $P < .05$ were further examined in a multivariable logistic regression to determine independent predictor variables while accounting for others. *P* values < .05 were identified as statistically significant. All analyses were performed in STATA13 (StataCorp LP, College Station, TX, USA).

## Results

A total of 80 patients (61%) were identified as having a preventable ED visit after bariatric surgery. Among those with preventable ED visits, 7 patients had 2 ED visits each and 1 patient had 3 ED visits. Eleven patients had ED visits to outside institutions. Eight of these visits were incurred by the group with preventable visits only, 2 visits by the patients with both

Table 4
Discharge characteristics

| Characteristic | Patients with preventable ED visit (n = 80) | Controls (n = 78) | *P* value ($X^2$/*t* test) |
|---|---|---|---|
| Education by PA,% | 70.0 | 70.5 | .8907 |
| Education by HO, % | 30.0 | 29.5 | .8907 |
| LOS, mean (±SD) | 3.3 (6.9) | 2.5 (2.1) | .3206 |
| Laboratory abnormality, % | 97.5 | 91.0 | .0803 |
| Electrolyte abnormality, % | 67.5 | 39.7 | .0005 |
| Anemia, % | 70.0 | 60.3 | .1889 |
| Thrombocytopenia, % | 2.5 | 5.1 | .5220 |
| Leukocytosis, % | 43.8 | 32.1 | .1216 |
| Reduced eGFR, % | 5.0 | .0 | .0462 |
| Hyperglycemia, % | 56.3 | 47.4 | .2593 |
| Total number of medications; mean (±SD) | 13.0 (4.8) | 11.5 (4.4) | .0465 |
| Psychoactive medication, % | 58.8 | 48.7 | .2087 |
| Antihypertensive, % | 40.0 | 42.3 | .7989 |
| Nonopioid analgesia, % | 31.3 | 15.4 | .0189 |
| Oral antidiabetics/insulin, % | 26.3 | 26.9 | .8871 |
| Antiemetic, % | 23.8 | 19.2 | .4460 |
| Two antiemetic, % | 5.0 | .0 | .0462 |
| Antimigraine, % | 7.5 | 6.4 | .6237 |
| Anticoagulant/antiplatelet, % | 15.0 | 12.8 | .7181 |
| Two anticoagulant/antiplatelet, % | 7.5 | .0 | .0140 |
| Anxiolytics, % | 16.3 | 6.4 | .0524 |
| Antiasthmatic (oral and inhaled), % | 35.0 | 29.5 | .4205 |
| Diuretics, % | 27.5 | 19.2 | .1840 |
| OCP, % | 17.5 | 12.8 | .3872 |
| PPI/H2 A, % | 77.5 | 71.8 | .3851 |
| Laxatives/stool softeners, % | 90.0 | 89.7 | >.999 |
| Antilipidemic, % | 27.5 | 26.9 | .8884 |
| Opioid, % | 97.5 | 96.2 | .4618 |

ED = emergency department; PA = physician assistant; HO = house officer; SD = standard deviation; eGFR = estimated glomerular filtration rate; OCP = oral contraceptive; PPI = proton pump inhibitor; H2 A = histamine 2 antagonists.

preventable and nonpreventable visits, and 1 visit by a patient in the nonpreventable group. Mean time to ED visit was 13 days after surgery (±8 d) (Table 2).

Baseline demographic, ED utilization behavior, comorbidities, and operative details for patients who had preventable ED visits and their matched controls with no ED visits are compared in Table 3. Patients with preventable ED visits had higher incidence of ED use preoperatively (1.5 ± 2.5 versus .3 ± .7; $P = .0001$) and postoperatively after 30 days (2.3 ± 3.6 versus .8 ± 2.0; $P = .0010$) and were more likely to be retired (10.3% versus .0%; $P = .0086$). Patients with preventable ED visits also had a higher incidence of OSA (63.8% versus 47.4%; $P = .0397$), liver disease (22.5% versus 10.3%; $P = .0386$), and mobility limitations (5.0% versus .0%; $P = .0462$).

Table 4 summarizes and compares characteristics at discharge, including length of stay, provider performing discharge education, laboratory studies, and prescriptions at discharge between patents with preventable ED visits and their matched controls. At discharge, patients with preventable visits

Table 5
Thirty-day complication rates

| 30-d complications | Patients with preventable ED visit (n = 80) | Controls (n = 78) | *P* value ($X^2$/*t* test) |
|---|---|---|---|
| Any complication, % | 27.5 | 5.1 | .0002 |
| Any infectious complication, % | 15.0 | 3.9 | .0172 |
| Hospital-acquired infection, % | 10.0 | .0 | .0043 |
| Wound complication, % | 15.0 | 2.6 | .0061 |
| UTI, % | 10.0 | .0 | .0043 |
| Severe complication, % | .0 | 2.6 | .1511 |
| Readmission, % | 23.8 | .0 | <.0001 |
| Reoperation, % | 1.3 | 2.6 | .5474 |

ED = emergency department; UTI = urinary tract infection.

Table 6
1-year patient reported outcomes

| Outcomes at 1 yr | Patients with preventable ED visit (n = 80) | Controls (n = 78) | *P* value ($X^2$/*t* test) |
|---|---|---|---|
| Survey completion, % | 51.3 | 59.0 | .3309 |
| BMI change at 1 yr, mean (±SD) | −14.3 (5.8) | −13.7 (4.8) | .5035 |
| BMI change at 2 yr, mean (±SD) | −13.6 (7.3) | −14.6 (7.3) | .4867 |
| Very satisfied, % | 78.1 | 84.8 | .4213 |
| Discontinuation of cholesterol medication, % | 42.9 | 38.5 | .8195 |
| Discontinuation of insulin, % | 75.0 | 57.9 | .2951 |
| Discontinuation of oral diabetes medication, % | 37.5 | 58.8 | .1575 |
| Resolution of OSA treatment, % | 52.6 | 60.0 | .6470 |
| Resolution of HTN, % | 47.6 | 33.3 | .3720 |

ED = emergency department; BMI = body mass index; SD = standard deviation; OSA = obstructive sleep apnea; HTN = hypertension.

had a higher incidence of electrolyte abnormalities (67.5% versus 39.7%; $P = .0005$) and reduced estimated glomerular filtration rate (5.0% versus .0%; $P = .0462$). They were on more medications (13.0 ± 4.8 versus 11.5 ± 4.4; $P = .0465$), including a higher rate of nonopioid analgesics (31.3% versus 15.4%; $P = .0189$) and a higher rate of 2 antiemetic (5.0% versus .0%; $P = .0462$) or 2 anticoagulant/antiplatelet drugs (7.5% versus .0%; $P = .0140$). Patients with preventable ED visits also tended to be on more anxiolytics compared with matched controls, nearing statistical significance on univariate analysis (16.3% versus 6.4%; $P = .0524$).

Table 5 summarizes 30-day complications for both groups. Patients with preventable ED visits experienced a higher rate of any complication (27.5% versus 5.1%; $P = .0002$) mostly related to the higher incidence of any infectious complication (15.0% versus 3.9%; $P = .0172$). Though the readmission rate was higher for patients with preventable ED visits when contrasted with their matched controls (23.8% versus .0%; $P < .0001$), reoperation rates did not vary between groups (1.3% versus 2.6%; $P = .5474$). Table 6 summarizes patient-reported outcomes at 1 year for both groups. At 1 year, patients with a preventable ED visit had a 51.3% follow-up rate compared with 59.0% for controls. There were no differences in patient-reported outcomes at 1 year between groups.

Factors independently associated with the occurrence of a preventable ED visit after multivariable regression are listed in Table 7. These included having an anxiolytic prescription at discharge (OR 5.4 [1.6–18.6]; $P = .007$), laboratory work demonstrating electrolyte abnormalities (OR 4.3 [1.9–9.6]; $P < .0001$) and leukocytosis (OR 2.2 [1.0–4.9]; $P = .048$) at discharge, and the number of ED visits preoperatively (OR 2.0 [1.3–3.1]; $P = .001$).

Table 7
Factors associated with preventable ED visits

| Characteristic* | Odds ratio | *P* value | 95% CI |
|---|---|---|---|
| Anxiolytics, % | 5.4 | .007 | 1.6–18.6 |
| Electrolyte abnormality, % | 4.3 | <.0001 | 1.9–9.6 |
| Leukocytosis, % | 2.2 | .048 | 1.0–4.9 |
| Number of ED visits before surgery | 2.0 | .001 | 1.3–3.1 |

CI = confidence interval; ED = emergency department.
* Variables with *P* value < .1 after stepwise regression shown. All variables with univariate *P* value < .15 were included.

## Discussion

In this study, we identified patients with preventable ED visits by excluding those presenting with life-threatening symptoms or need for inpatient treatment. When compared with a matched control group, patients with preventable ED visits had a higher rate of wound complications and urinary tract infections. However, rates of severe complications and reoperations were very low and did not differ. Risk factors among patients who are likely to incur a preventable ED visit included postoperative electrolyte abnormality, leukocytosis, and/or an anxiolytic prescription at discharge as well as a history of ED visits before surgery. As the rate of bariatric procedures increases, it will be important to reduce the number of preventable ED visits to minimize inappropriate healthcare spending and improve patient satisfaction. Our study provides a data-driven approach to identifying patients at risk for preventable ED utilization after bariatric surgery and can be targeted for more frequent follow-up and triaged appropriately for clinic evaluation that can address low-acuity complications.

The rate of preventable ED visits in our study (61%) is similar to the previously reported rates [6,7]. Socioeconomic status, race, pulmonary disease, functional status, distance traveled to facility where procedure performed, and government funded insurance are often associated with an increased rate postoperative ED visits and readmissions [4,12–14]. Age has also been implicated, as both younger and older patients are susceptible to increased postoperative ED utilization either as a result of reduced compliance or higher degree of medical complexity [13]. To date, there is no defined set of characteristics that predicts preventable ED presentation after bariatric surgery specifically [11]. We found that liver disease and OSA were associated with patients at higher risk for

preventable ED visits, and this finding correlates with the increased ED utilization by nonsurgical patients with these co-morbidities as well [15–17]. Moreover, our data also show that patients with a decreased estimated glomerular filtration rate and a higher number of medications at discharge were also associated with preventable ED visits as they may be more frequent users of the healthcare system due to a higher degree of medical complexity. Type of medication, including anxiolytic but not opioid prescriptions, also predicted a preventable visit. Other work has shown an association between a preoperative history of ED use and postoperative ED visits that do not result in inpatient admission [6]. Although early discharge has not been associated with higher postdischarge resource utilization, longer operative times and postoperative length of stay have also been associated with increased presentation to the ED [6,18]. However, length of stay remained controversial as multiple studies have also shown it to not be significant [5,19]. In our study, patients with preventable ED visits had similar operative times and length of stay to their matched controls, which indicates that surgical and hospital-level factors were not associated with preventable ED visits after bariatric surgery. While previous work identifies distance traveled to facility as associated with ED visits after bariatric surgery, we did not find this as a risk factor for a preventable ED visit in our study [4].

Ideally, patients at high risk for preventable ED visits can be identified in the postoperative setting and triaged in a nonurgent environment to avoid inappropriate resource utilization of the ED. Alternative settings for postoperative management of patients include traditional clinic visits and urgent care visits, as well as telemedicine and the use of home-monitoring devices [20]. Clinic alternatives have the potential to reduce 13.7% to 27.1% of all ED visits and decrease healthcare spending by $4.4 billion annually [21]. Telemedicine has already demonstrated promise for reducing preventable ED visits in bariatric surgery patients [22]. Furthermore, vital sign monitoring devices provide medical surveillance and may aid in the decision to seek further care [23]. These types of patient-facing interactions are not only less resource intensive but have yielded higher patient satisfaction scores in bariatric surgery and other surgical specialties [22–24]. Our study identifies criteria that can help bariatric surgery programs to identify patients at risk for presenting to the ED after bariatric surgery with symptoms that otherwise could have been addressed in an alternative setting. Although further validation and site-specific modification of these criteria may be needed, our data provide a scaffold for future analysis specific to the bariatric surgery population.

Our study has several limitations to consider. First, our data represent that of a single-institution retrospective study, which limits generalizability. Furthermore, our sample size is relatively small and may reduce our ability to uncover differences when they may in fact exist. However, we were able to abstract a robust and inclusive set of patient variables, including all laboratory values and specific medications prescribed at discharge, which is unique. While both groups were matched taking into consideration a variety of factors, our data are not randomized and there is potential for confounding. Finally, our data may underestimate the number of preventable ED visits as presentation to emergency rooms outside of the state-wide multi-institutional bariatric collaboration could have been missed.

## Conclusions

Preventable ED visits are common after bariatric surgery, and patients with a history of ED visits or electrolyte abnormalities/leukocytosis at discharge, or who are discharged with anxiolytics, are at higher risk. Although these patients present to the ED with non–life-threatening disease, they do have a higher rate of wound complications and urinary tract infections compared with matched controls. Identifying patients who are high risk for a preventable ED visit can help reduce healthcare expenditure by using lower cost clinical environments for more frequent follow-up, assessment, and triage of care. Multi-institutional studies are needed to validate criteria used for risk assessment.

## Disclosures

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