Background: Enhanced Recovery after Surgery for mastectomy has resulted in increased use of outpatient same-day mastectomy (SDM). Whether SDM leads to increased readmissions or reoperations is not well documented. This study examines national data to compare outcomes of SDM to an overnight stay.

Methods: We analyzed the American College of Surgeons National Surgical Quality Improvement Program Participant Use Data File from 2016 to 2018 for all mastectomy cases. Cases with a length of stay (LOS) > 1 day were excluded. Cases were then categorized into 2 LOS cohorts: SDM vs 1-day LOS.

Results: A total of 22,642 cases (80.8% 1-day LOS vs 19.2% SDM) were identified for the final analysis. Patients in the 1-day LOS group were more likely to be older (57.9 vs 54.0 years, P < 0.01), be female (98.0% vs 79.8%, P < 0.01), and have greater comorbidity (38.1% vs 30.7% American Society of Anesthesiologists classification 3 or 4, P < 0.01) compared to the SDM group. Multivariate analysis demonstrated no difference in risk for 30-day wound complications between the SDM and 1-day LOS groups. The risks for 30-day medical complications (1.60 odds ratio [OR], 95% CI 1.06-2.42, P = 0.02), reoperations (1.46 OR, 95% CI 1.17-1.81, P < 0.01), and readmissions (1.60 OR, 95% CI 1.25-2.05, P < 0.01) were higher in the 1-day LOS group. Even after excluding patients undergoing reoperation on the day of surgery, the risk for reoperations (2.3% vs 3.3%, P < 0.01) remained higher in the 1-day LOS group. Characteristics associated with 1-day LOS were hypertension, steroid use, diabetes, dyspnea, dependent functional status, bilateral procedures, and breast reconstruction.

Conclusion: We demonstrate that SDM is a safe procedure, with no increase in risk for 30-day postoperative complications. Appropriate patients should be offered SDM.

Keywords: Ambulatory surgical procedures, enhanced recovery after surgery, length of stay, postoperative complications, same-day mastectomy, treatment outcome
METHODS

Patients
We obtained institutional review board approval for this retrospective analysis utilizing the American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) Participant Use Data File from 2016 to 2018. Mastectomy cases were selected using Current Procedural Terminology codes 19303 and 19304 (simple, subcutaneous). We included elective procedures and only those with clean wounds (wound class I). Emergency cases and patients admitted with sepsis were excluded. We excluded cases with an LOS >1 day as these patients were likely to either have comorbidities that rendered them ineligible for SDM or may have already experienced a complication. Therefore, cases with an LOS >1 day were excluded to avoid bias to our data. The total number of eligible cases for this analysis was 22,642. Cases were categorized into 2 groups: SDM vs 1-day LOS. SDM was defined as patients discharged on the day of surgery, while 1-day LOS was defined as patients who stayed overnight and were discharged on postoperative day 1.

Outcomes
The primary outcomes were 30-day total wound and medical complications, readmissions, and reoperations. Wound complications included superficial incisional surgical site infection (SSI), deep incisional SSI, organ space SSI, and wound disruption. Medical complications were defined as pneumonia, pulmonary embolism, urinary tract infection, cerebrovascular accident, myocardial infarction, bleeding transfusions, deep vein thrombosis/thrombophlebitis, sepsis, septic shock, reintubation, failure to wean off ventilator >48 hours, renal insufficiency, renal failure, and cardiac arrest requiring cardiopulmonary resuscitation. Secondary outcomes were patient and operative factors associated with 1-day LOS. The ACS NSQIP database does not collect hospital costs as a variable. We were also unable to collect our institutional cost data to provide any meaningful cost analysis of SDM vs 1-day LOS.

Statistical Analysis
We first analyzed the data by examining for any outliers and overall general trends. Next, descriptive statistics were used to examine the distribution of each outcome of interest. The Pearson chi-squared and two-sided Fisher exact test analyzed differences in categorical variables between groups. Categorical variables included sex, race, comorbidity (diabetes mellitus, smoking history, dyspnea, chronic obstructive pulmonary disease, congestive heart failure, hypertension, dialysis, disseminated cancer, chronic steroid use, >10% weight loss in <6 months, and bleeding disorders), functional status, American Society of Anesthesiologists (ASA) classification, and 30-day postoperative complications. We used t test to analyze differences in continuous variables (ie, age). Multivariate analysis controlled for differences in comorbidity between groups and identified patient and procedure characteristics associated with 1-day LOS. All analyses were performed using SPSS Statistics, version 25 (IBM). A P value ≤0.05 was treated as statistically significant.

RESULTS
A total of 22,642 cases (80.8% 1-day LOS vs 19.2% SDM) were identified for the final analysis. Patients in the 1-day LOS group were more likely to be older (57.9 vs 54.0 years, P<0.01), be female (98.0% vs 79.8%, P<0.01), and have greater comorbidity (38.1% vs 30.7% ASA classification 3 or 4, P<0.01) compared to the SDM group (Table 1). The 1-day LOS group was more likely to undergo a simple mastectomy, bilateral procedures, or have immediate breast reconstruction (Table 2).

Univariate analysis demonstrated an increased risk of 30-day total wound and medical complications, readmissions, and reoperations in the 1-day LOS group compared to the SDM group (Table 3). The increased risk in wound complications was attributable to superficial incisional and organ space SSI. Multivariate analysis, controlling for differences in comorbidity between the 2 groups, revealed no difference in risk for superficial incisional SSI, organ space SSI, or total wound complications (Table 4). The risk for total medical complications, reoperations, and readmissions remained higher for patients in the 1-day LOS group.

To avoid risk of bias by including patients with complications in the 1-day LOS group, we performed a subset analysis excluding patients with a day-of-surgery return to the operating room. Even after excluding these patients, the risk of reoperations remained higher in the 1-day LOS group (2.3% vs 3.3%, P<0.01) (data not shown).

Smoking, diabetes mellitus, dyspnea with moderate exercise or at rest, and hypertension requiring medication were identified as risk factors for wound complications (Table 5). Dyspnea with moderate exercise or at rest and hypertension requiring medication were associated with increased risk for medical complications. Smoking also increased the risk for 30-day reoperations and readmissions. Other risk factors for readmission included partially or totally dependent functional status, dyspnea with moderate exercise or at rest, and hypertension requiring medication.

Patient characteristics associated with 1-day LOS were partially or totally dependent functional status, hypertension requiring medication, steroid use within 30 days, dyspnea with moderate exercise or at rest, and diabetes mellitus (Table 6). Operative characteristics associated with 1-day LOS were bilateral procedures and breast reconstruction, both immediate and delayed.

DISCUSSION
The Kaiser Permanente Northern California health care system was among the first to implement an SDM protocol across its 21 medical centers.10 Kaiser Permanente successfully increased the utilization of SDM from 16% to 75% during the course of a year, without any corresponding increase in emergency department visits, readmissions, or reoperations.10 Another initiative across 13 hospitals in Canada demonstrated an increase in SDM utilization from 1.7% in 2011 to 47.8% in 2018, with no corresponding increase in either readmissions or reoperations.11 Patient-reported experience measures surveys showed an overall 90% level of satisfaction with SDM planning and ability to self-care and recover at home.11

Several other single institutions have reviewed the safety of their SDM protocols and have reported similar advantages of shorter LOS and lower hospital costs.12-16 These
Table 1. Patient Demographics

| Variable                                      | Same-Day Mastectomy Group, n=4,357 | 1-Day Length of Stay Group, n=18,285 | P Value |
|------------------------------------------------|-----------------------------------|--------------------------------------|---------|
| Age, years, mean                              | 54.0                              | 57.9                                 | <0.01   |
| Sex                                           |                                   |                                      | <0.01   |
| Male                                          | 880 (20.2)                        | 357 (2.0)                           |         |
| Female                                        | 3,477 (79.8)                      | 17,928 (98.0)                       |         |
| Race                                          |                                   |                                      | <0.01   |
| White                                         | 2,391 (54.9)                      | 13,621 (74.5)                       |         |
| Black or African American                     | 313 (7.2)                         | 1,674 (9.2)                         |         |
| Asian                                         | 335 (7.7)                         | 921 (5.0)                           |         |
| Unknown/Not reported                          | 1,263 (29.0)                      | 1,941 (10.6)                        |         |
| Native Hawaiian or Pacific Islander           | 45 (1.0)                          | 66 (0.4)                            |         |
| American Indian or Alaska Native              | 10 (0.2)                          | 62 (0.3)                            |         |
| Comorbidities                                 |                                   |                                      |         |
| Diabetes mellitus                             | 471 (10.8)                        | 2,172 (11.9)                        | 0.04    |
| Current smoker within 1 year                  | 550 (12.6)                        | 2,015 (11.0)                        | <0.01   |
| Dyspnea with moderate exercise or at rest     | 150 (3.4)                         | 769 (4.2)                           | 0.02    |
| Chronic obstructive pulmonary disease         | 95 (2.2)                          | 464 (2.5)                           | 0.17    |
| Congestive heart failure within 30 days       | 11 (0.3)                          | 35 (0.2)                            | 0.42    |
| Hypertension requiring medication             | 1,469 (33.7)                      | 6,924 (37.9)                        | <0.01   |
| Currently on dialysis                         | 11 (0.3)                          | 28 (0.2)                            | 0.16    |
| Disseminated cancer                           | 60 (1.4)                          | 269 (1.5)                           | 0.64    |
| Steroid use for chronic condition            | 76 (1.7)                          | 417 (2.3)                           | 0.03    |
| > 10% weight loss in <6 months                | 15 (0.3)                          | 67 (0.4)                            | 0.83    |
| Bleeding disorders                            | 43 (1.0)                          | 219 (1.2)                           | 0.24    |
| Functional status\(^a\)                      |                                   |                                      | 0.02    |
| Independent                                   | 4,306 (99.4)                      | 18,043 (99.1)                       |         |
| Partially or totally dependent                | 24 (0.6)                          | 165 (0.9)                           |         |
| American Society of Anesthesiologists\(^b\) classification |            |                                      | <0.01   |
| 1                                             | 643 (14.8)                        | 868 (4.8)                           |         |
| 2                                             | 2,369 (54.4)                      | 10,426 (57.1)                       |         |
| 3                                             | 1,279 (29.4)                      | 6,737 (36.9)                        |         |
| 4                                             | 59 (1.4)                          | 227 (1.2)                           |         |

Note: Data are reported as n (%) unless otherwise indicated.
\(^a\) n=4,330 for the same-day group and n=18,208 for the 1-day length of stay group.
\(^b\) n=4,350 for the same-day group and n=18,258 for the 1-day length of stay group.

smaller studies have been somewhat limited in their findings as single-center experiences. Thus, the question is if these favorable outcomes with SDM can be widely applied and implemented at the national level. This study analyzed a large national database and reaffirmed that SDM is not associated with a higher likelihood of an adverse postoperative event or outcome. In fact, the risk of total medical complications, reoperations, and readmissions was lower for patients in the SDM group compared to those who stayed overnight. One possible explanation could be that SDM patients who require reoperation on the day of surgery are more likely to stay overnight for additional monitoring and would therefore affect the data. However, our analysis controlled for patients undergoing a reoperation on the day of surgery and still found an elevated risk for reoperations in the 1-day LOS group.

At breast centers considering SDM protocols, the use of a multimodal approach to pain management, beginning in the preoperative setting and extending through same-day discharge to home, should be evaluated. A pain management regimen may include a variety of medications, including preoperative gabapentin, acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDs), and scopolamine. Intraoperative regional nerve blocks can be successfully achieved with long-acting anesthetics, such as liposomal bupivacaine via a multilevel midaxillary intercostal nerve block.\(^1\) A multimodal
## Table 2. Procedure Details

| Variable                  | Same-Day Mastectomy Group, n=4,357 | 1-Day Length of Stay Group, n=18,285 | P Value |
|---------------------------|------------------------------------|---------------------------------------|---------|
| Mastectomy                |                                    |                                       | <0.01   |
| Simple                    | 3,546 (81.4)                       | 17,737 (97.0)                        |         |
| Subcutaneous              | 811 (18.6)                         | 548 (3.0)                            |         |
| Laterality                |                                    |                                       | <0.01   |
| Unilateral                | 3,640 (83.5)                       | 13,680 (74.8)                        |         |
| Bilateral                 | 717 (16.5)                         | 4,605 (25.2)                         |         |
| Breast reconstruction     |                                    |                                       | <0.01   |
| Immediate                 | 214 (4.9)                          | 1,493 (8.2)                          |         |
| Delayed                   | 268 (6.2)                          | 5,990 (32.8)                         |         |

Note: Data are reported as n (%).

An approach to pain management has been shown to result in significantly lower pain scores in the recovery room, reduce perioperative opioid consumption, decrease postoperative nausea and vomiting, and shorten LOS.\textsuperscript{17-21}

Several patient characteristics are associated with 1-day LOS. Partially or totally dependent patients are likely to remain in the hospital longer because of their increased need for support to complete activities of daily living.\textsuperscript{22} Cognitive impairment prior to surgery and decline in activities of daily living prior to surgery are both independent risk factors associated with 1-year functional decline after breast cancer surgery.\textsuperscript{22} Preoperative shoulder range of motion exercises reduce postoperative pain and expedite recovery after mastectomy.\textsuperscript{23} Diabetes has also been shown to increase the risk of postoperative complications and lengthen LOS for patients undergoing breast reconstruction.\textsuperscript{24}

## Table 3. Univariate Analysis of Postoperative Complications

| Complication                                      | Same-Day Mastectomy Group, n=4,357 | 1-Day Length of Stay Group, n=18,285 | P Value |
|---------------------------------------------------|------------------------------------|---------------------------------------|---------|
| Any wound complication within 30 days             | 113 (2.6)                          | 637 (3.5)                            | <0.01   |
| Superficial incisional surgical site infection    | 62 (1.4)                           | 348 (1.9)                            | 0.03    |
| Organ space surgical site infection               | 22 (0.5)                           | 160 (0.9)                            | 0.01    |
| Deep incisional surgical site infection           | 17 (0.4)                           | 83 (0.5)                             | 0.57    |
| Wound disruption                                  | 13 (0.3)                           | 69 (0.4)                             | 0.44    |
| Any medical complication within 30 days           | 28 (0.6)                           | 202 (1.1)                            | <0.01   |
| Urinary tract infection                           | 10 (0.2)                           | 38 (0.2)                             | 0.78    |
| Sepsis                                            | 7 (0.2)                            | 65 (0.4)                             | 0.04    |
| Myocardial infarction                             | 3 (0.1)                            | 8 (0.0)                              | 0.50    |
| Bleeding transfusions                             | 5 (0.1)                            | 17 (0.1)                             | 0.68    |
| Deep vein thrombosis/thrombophlebitis             | 3 (0.1)                            | 23 (0.1)                             | 0.32    |
| Septic shock                                      | 3 (0.1)                            | 6 (0.0)                              | 0.24    |
| Pneumonia                                         | 2 (0.0)                            | 16 (0.1)                             | 0.38    |
| Pulmonary embolism                                | 1 (0.0)                            | 20 (0.1)                             | 0.09    |
| Cerebrovascular accident/stroke with neurologic deficit | 0 (0.0)                        | 11 (0.1)                             | 0.11    |
| Reintubation                                       | 1 (0.0)                            | 7 (0.0)                              | 0.53    |
| Failure to wean off ventilator >48 h              | 2 (0.0)                            | 4 (0.0)                              | 0.33    |
| Renal insufficiency                               | 2 (0.0)                            | 2 (0.0)                              | 0.17    |
| Renal failure                                     | 0 (0.0)                            | 3 (0.0)                              | 0.53    |
| Cardiac arrest requiring cardiopulmonary resuscitation | 1 (0.0)                        | 2 (0.0)                              | 0.47    |
| 30-day return to the operating room               | 110 (2.5)                          | 664 (3.6)                            | <0.01   |
| 30-day readmission                                | 81 (1.9)                           | 555 (3.0)                            | <0.01   |

Note: Data are reported as n (%).
Table 4. Multivariate Analysis Demonstrating the Odds for Postoperative Complications in the 1-Day Length of Stay Group

| Variable                                                                 | Exp(B) | 95% CI Low  | 95% CI High | P Value |
|--------------------------------------------------------------------------|--------|-------------|-------------|---------|
| Any wound complication within 30 days                                   | 1.21   | 0.98        | 1.50        | 0.07    |
| Superficial incisional surgical site infection                          | 1.24   | 0.93        | 1.65        | 0.14    |
| Organ space surgical site infection                                     | 1.53   | 0.96        | 2.42        | 0.07    |
| Any medical complication within 30 days                                 | 1.60   | 1.06        | 2.42        | 0.02    |
| 30-day return to the operating room                                     | 1.46   | 1.17        | 1.81        | <0.01   |
| 30-day readmission                                                      | 1.60   | 1.25        | 2.05        | <0.01   |

Exp(B), exponentiation of the B coefficient.

Table 5. Multivariate Analysis Identifying Risk Factors for Postoperative Complications

| Variable                                                                 | Exp(B) | 95% CI Low  | 95% CI High | P Value |
|--------------------------------------------------------------------------|--------|-------------|-------------|---------|
| Risk factors for wound complications within 30 days                      |        |             |             |         |
| Smoking                                                                  | 1.88   | 1.56        | 2.28        | <0.01   |
| Diabetes mellitus                                                        | 1.51   | 1.22        | 1.85        | <0.01   |
| Dyspnea with moderate exercise or at rest                                | 1.36   | 1.00        | 1.86        | 0.05    |
| Hypertension requiring medication                                        | 1.35   | 1.14        | 1.60        | <0.01   |
| Risk factors for medical complications within 30 days                    |        |             |             |         |
| Dyspnea with moderate exercise or at rest                                | 2.21   | 1.41        | 3.47        | <0.01   |
| Hypertension requiring medication                                        | 1.42   | 1.05        | 1.92        | 0.02    |
| Risk factor for 30-day return to the operating room                      |        |             |             |         |
| Smoking                                                                  | 1.33   | 1.08        | 1.63        | 0.01    |
| Risk factors for 30-day readmission                                     |        |             |             |         |
| Partially or totally dependent functional status                         | 2.62   | 1.57        | 4.37        | <0.01   |
| Dyspnea with moderate exercise or at rest                                | 1.98   | 1.47        | 2.67        | <0.01   |
| Smoking                                                                  | 1.36   | 1.08        | 1.70        | <0.01   |
| Hypertension requiring medication                                        | 1.28   | 1.07        | 1.54        | <0.01   |

Exp(B), exponentiation of the B coefficient.

Table 6. Multivariate Analysis Identifying Patient and Operative Characteristics Associated With 1-Day Length of Stay

| Variable                                                                 | Exp(B) | 95% CI Low  | 95% CI High | P Value |
|--------------------------------------------------------------------------|--------|-------------|-------------|---------|
| Patient characteristics                                                  |        |             |             |         |
| Partially or totally dependent functional status                         | 1.79   | 1.14        | 2.79        | 0.01    |
| Hypertension requiring medication                                        | 1.32   | 1.22        | 1.44        | <0.01   |
| Steroid use within 30 days                                               | 1.31   | 1.01        | 1.69        | 0.04    |
| Dyspnea with moderate exercise or at rest                                | 1.27   | 1.05        | 1.53        | 0.01    |
| Diabetes mellitus                                                        | 1.18   | 1.04        | 1.32        | <0.01   |
| Operative characteristics                                                |        |             |             |         |
| Delayed breast reconstruction                                            | 6.86   | 6.00        | 7.85        | <0.01   |
| Immediate breast reconstruction                                          | 1.88   | 1.61        | 2.20        | <0.01   |
| Bilateral mastectomy                                                     | 1.21   | 1.09        | 1.33        | <0.01   |

Exp(B), exponentiation of the B coefficient.
Operative characteristics correlating with 1-day LOS were bilateral procedures and breast reconstruction. We believe that the main reason for an overnight hospital stay is the concern for patient safety. Studies have shown that admitting breast reconstruction patients overnight does not prevent short-term complications, and early discharge has been shown to be quite safe in this population. Neoadjuvant chemotherapy, immediate breast reconstruction, or bilateral mastectomy does not increase the risk for hospital readmissions.

The above findings are consistent with a 2021 study that identified increased age, ASA class 3 or 4, bilateral operation, immediate reconstruction, estimated blood loss > 100 mL, perioperative NSAIDs, and perioperative gabapentin to be associated with a lower likelihood for SDM. High-volume breast surgeons who use perioperative intravenous acetaminophen and opioids in ERAS protocols increase the likelihood of SDM.

Our institutional patient selection criteria for SDM include unilateral or bilateral mastectomy, with or without sentinel lymph node biopsy; simple or complete mastectomy; and modified radical mastectomy, with or without immediate breast reconstruction. Patients excluded from our SDM protocol include those undergoing free-flap breast reconstruction and patients with significant medical comorbidities and/or inadequate family support systems. A case-by-case decision is made for patients on anticoagulation, on neoadjuvant chemotherapy, or with extensive disease burden in the axilla.

Our study has limitations. The ACS NSQIP database is only a cross-section of all mastectomy cases performed nationally each year. The 2018 dataset contained 1,020,511 cases submitted from 722 participating sites. As such, we believe that the dataset is a reliable source to investigate outcomes after SDM at the national level. Consequently, confounding factors may exist that we were unable to control for in this study. Additionally, selection bias is likely regarding the patients eligible for SDM, as SDM is still in an early adoption phase, and only optimal candidates are probably being selected for SDM. Finally, the ACS NSQIP does not collect or report hospital costs. We were also unable to collect our institutional cost data to provide any meaningful cost analysis of SDM vs 1-day LOS.

CONCLUSION

This study demonstrates that SDM is a safe procedure, with no increase in risk for adverse 30-day postoperative complications. The risk of total wound complications was similar between the SDM and 1-day LOS groups. The risk for 30-day medical complications, readmissions, and reoperations was lower in the SDM group compared to the 1-day LOS group. Bilateral procedures, inclusive of immediate breast reconstruction, can be safely performed as an SDM procedure.

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REFERENCES

1. Cancer stats facts: female breast cancer. National Cancer Institute. Accessed April 7, 2021. seer.cancer.gov/statfacts/html/breast.html
2. Harding C, Pompei F, Burnistrov D, Wilson R. Use of mastectomy for overdagnosis breast cancer in the United States: analysis of the SEER 9 cancer registries. J Cancer Epidemiol. 2019;2019:5072506. doi: 10.1155/2019/5072506
3. Tarazi R, Esselstyn CB Jr, Kuivita T, Hardesty I. Early hospital discharge following mastectomy. Cleve Clin Q. 1984;51(4):579-584.
4. Cohen AM, Schaeffer N, Chen ZY, Wood WC. Early discharge after modified radical mastectomy. Am J Surg. 1986;151(4):465-466. doi: 10.1016/0002-9610(86)90104-2
5. Orr RK, Ketcham AS, Robinson DS, Mofat FL, Tennant ND. Early discharge after mastectomy. A safe way of diminishing hospital costs. Am Surg. 1987;53(3):161-163.
6. Goodman AA, Mendez AL. Definitive surgery for breast cancer performed on an outpatient basis. Arch Surg. 1993;128(10):1149-1152. doi: 10.1001/archsurg.1993.01420220069009
7. Tan LR, Guenther JM. Outpatient definitive breast cancer surgery. Am Surg. 1997;63(10):865-867.
8. Marfa S, Stallard S. Systematic review of day surgery for breast cancer. Int J Surg. 2009;7(4):318-323. doi: 10.1016/j.ijsu.2009.04.015
9. Laurent AC, Moutett D, Renou M, et al. Feasibility and accuracy of day surgery: review of 396 operated breast cancer patients. Article in French. Bull Cancer. 2016;103(11):928-934. doi: 10.1016/j.bulcan.2016.09.019
10. Vuong B, Graff-Baker AN, Yanagisawa M, et al. Implementation of a post-mastectomy home recovery program in a large, integrated health care delivery system. Ann Surg Oncol. 2019;26(10):3178-3184. doi: 10.1245/s10434-019-07551-0
11. Keehn AR, Olson DW, Dort JC, et al. Same-day surgery for mastectomy patients in Alberta: a perioperative care pathway and quality improvement initiative. Ann Surg Oncol. 2019;26(10):3354-3360. doi: 10.1245/s10434-019-07568-5
12. Baker MA, Coker C, Atamian E, Yoo D, Torabi R, Riker AL. A single-institution case series of outpatient same-day mastectomy: implementation of a quality improvement project and initiative for enhanced recovery after surgery. Ochsner J. 2020;20(4):388-393. doi: 10.31486/toj.20.0040
13. Specht M, Sobti N, Rosado N, et al. High-efficiency same-day approach to breast reconstruction during the COVID-19 crisis. Breast Cancer Res Treat. 2020;182(3):679-688. doi: 10.1007/s10549-020-05739-7
14. Schwartz JC. Mastectomy and prepectoral reconstruction in an ambulatory surgery center reduces major infectious complication rates. Plast Reconstr Surg Glob Open. 2020;8(7):e2960. doi: 10.1097/GOX.0000000000002960
15. Hammond JB, Thomas O, Jogerst K, et al. Same-day discharge is safe and effective after implant-based breast reconstruction. Ann Plast Surg. 2021;87(2):144-149. doi: 10.1097/SAP.0000000000002667
16. Jogerst K, Thomas O, Kosirek HE, et al. Same-day discharge after mastectomy: breast cancer surgery in the era of ERAS®. Ann Surg Oncol. 2020;27(9):3436-3445. doi: 10.1245/s10434-020-08386-w
17. Rojas KE, Manasseh DM, Flom PL, et al. A pilot study of a breast surgery enhanced recovery after surgery (ERAS) protocol to eliminate narcotic prescription at discharge. Breast Cancer Res Treat. 2018;171(3):621-626. doi: 10.1007/s10549-018-4859-y
18. Kennedy GT, Hill CM, Huang Y, et al. Enhanced recovery after surgery (ERAS) protocol reduces perioperative narcotic
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requirement and length of stay in patients undergoing mastectomy with implant-based reconstruction. *Am J Surg.* 2020;220(1):147-152. doi: 10.1016/j.amjsurg.2019.10.007

19. Chiu C, Aleshi P, Esserman LJ, et al. Improved analgesia and reduced post-operative nausea and vomiting after implementation of an enhanced recovery after surgery (ERAS) pathway for total mastectomy. *BMC Anesthesiol.* 2018;18(1):41. doi: 10.1186/s12871-018-0505-9

20. Ackerman RS, Hirschi M, Alford B, Evans T, Kiluk JV, Patel SY. Enhanced REVENUE after surgery? A cost-standardized enhanced recovery pathway for mastectomy decreases length of stay. *World J Surg.* 2019;43(3):839-845. doi: 10.1007/s00268-018-4850-0

21. Terkawi AS, Tsang S, Sessler DI, et al. Improving analgesic efficacy and safety of thoracic paravertebral block for breast surgery: a mixed-effects meta-analysis. *Pain Physician.* 2015;18(5):E757-E780.

22. Tang V, Zhao S, Boscardin J, et al. Functional status and survival after breast cancer surgery in nursing home residents. *JAMA Surg.* 2018;153(12):1090-1096. doi: 10.1001/jamasurg.2018.2736

23. Yang A, Sokolof J, Gulati A. The effect of preoperative exercise on upper extremity recovery following breast cancer surgery: a systematic review. *Int J Rehabil Res.* 2018;41(3):189-196. doi: 10.1097/MRR.0000000000000288

24. Qin C, Vaca E, Lovecchio F, Ver Halen JP, Hansen NM, Kim JYS. Differential impact of non-insulin-dependent diabetes mellitus and insulin-dependent diabetes mellitus on breast reconstruction outcomes. *Breast Cancer Res Treat.* 2014;146(2):429-438. doi: 10.1007/s10549-014-3024-5

25. Cordeiro E, Zhong T, Jackson T, Cil T. The safety of same-day breast reconstructive surgery: an analysis of short-term outcomes. *Am J Surg.* 2017;214(3):495-500. doi: 10.1016/j.amjsurg.2016.11.015

26. Qin C, Antony AK, Aggarwal A, Jordan S, Gutowski KA, Kim JYS. Assessing outcomes and safety of inpatient versus outpatient tissue expander immediate breast reconstruction. *Ann Surg Oncol.* 2015;22(11):3724-3729. doi: 10.1245/s10434-015-4407-5

27. Fischer JP, Wes AM, Tuggle CT, et al. Mastectomy with or without immediate implant reconstruction has similar 30-day perioperative outcomes. *J Plast Reconstr Aesthet Surg.* 2014;67(11):1515-1522. doi: 10.1016/j.bjps.2014.07.021

28. Vuong B, Dusendang JR, Chang SB, et al. Outpatient mastectomy: factors influencing patient selection and predictors of return to care. *J Am Coll Surg.* 2021;232(1):35-44. doi: 10.1016/j.jamcollsurg.2020.09.015

29. ACS NSQIP Participant Use Data File. American College of Surgeons National Surgical Quality Improvement Program. Accessed April 7, 2021. www.facs.org/quality-programs/acs-nsqip/participant-use

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