

# Wound Disruption Causing Increased Reoperation Rates in Transfeminine Bottom Surgery? An Analysis of the NSQIP Database from 2010-2020

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## Introduction

- Gender affirmation surgery (GAS) has gained traction in recent years, due, in large part, to increased societal acceptance of transgender individuals.<sup>1,2</sup>
- Undergoing vaginoplasty has been shown to provide therapeutic benefits for male-to-female (MtF) transgender patients and patients have a high degree of satisfaction with the aesthetic, sexual, and functional ability of the neovagina following MtF bottom surgery.<sup>2-5</sup>
- Although the incidence of major adverse events following MtF bottom surgery is low, possible complications associated with GAS in MtF transgender patients are consistent throughout existing literature.
- Given the growing societal acceptance of transgender individuals, it is expected that there will be increased demand for GAS. As such, it is important to consider factors that affect patient health and satisfaction. The ability to objectively evaluate surgical outcomes of MtF bottom surgery is an important step towards improving care for MtF transgender patients undergoing GAS.

## Purpose

The goal of the present study is to evaluate the postoperative complications with potential risk factors and re-operation rates following MtF surgery using the American College of Surgeons-National Surgical Quality Improvement Program (ACS-NSQIP). Our ultimate goal is to improve surgical outcomes in the MtF transgender population.

## Methods

- Using the American College of Surgeons-National Surgical Quality Improvement Program (ACS-NSQIP) database, we identified patients undergoing gender affirmation surgery using Current Procedural Terminology (CPT) codes included in male to female (MtF) bottom surgery (**Table 1**) starting from the beginning of 2010 to the end of 2020.
- The cases were then selected by filtering for International Classification of Diseases Ninth and Tenth Revisions (ICD 9 and ICD 10) codes for gender identity disorder and transsexualism (**Table 2**).
- Patients who had undergone reoperation were identified by the variable "Unplanned Reoperation 1 related to principal operative procedure" marked "Yes."
- Multivariate regression analysis was performed to identify risk factors for unplanned reoperation using the IBM SPSS statistical system (IBM Corp, NY). A risk-adjusted multivariate regression analysis controlling for BMI, age, race, smoking status, and diabetes was also performed to identify other risk factors.

Table 1. CPT Codes

ICD Code	Description
<b>MtF Bottom Surgery</b>	
55970	Intersex (MtF) transfeminine bottom surgery
57335	Vaginoplasty
57291	Vaginal construction
17380	Electrolysis
53430	Urethroplasty
54125	Penectomy
54520	Orchiectomy
57291	Colovaginoplasty
56805	Clitoroplasty
58999	Labiaplasty

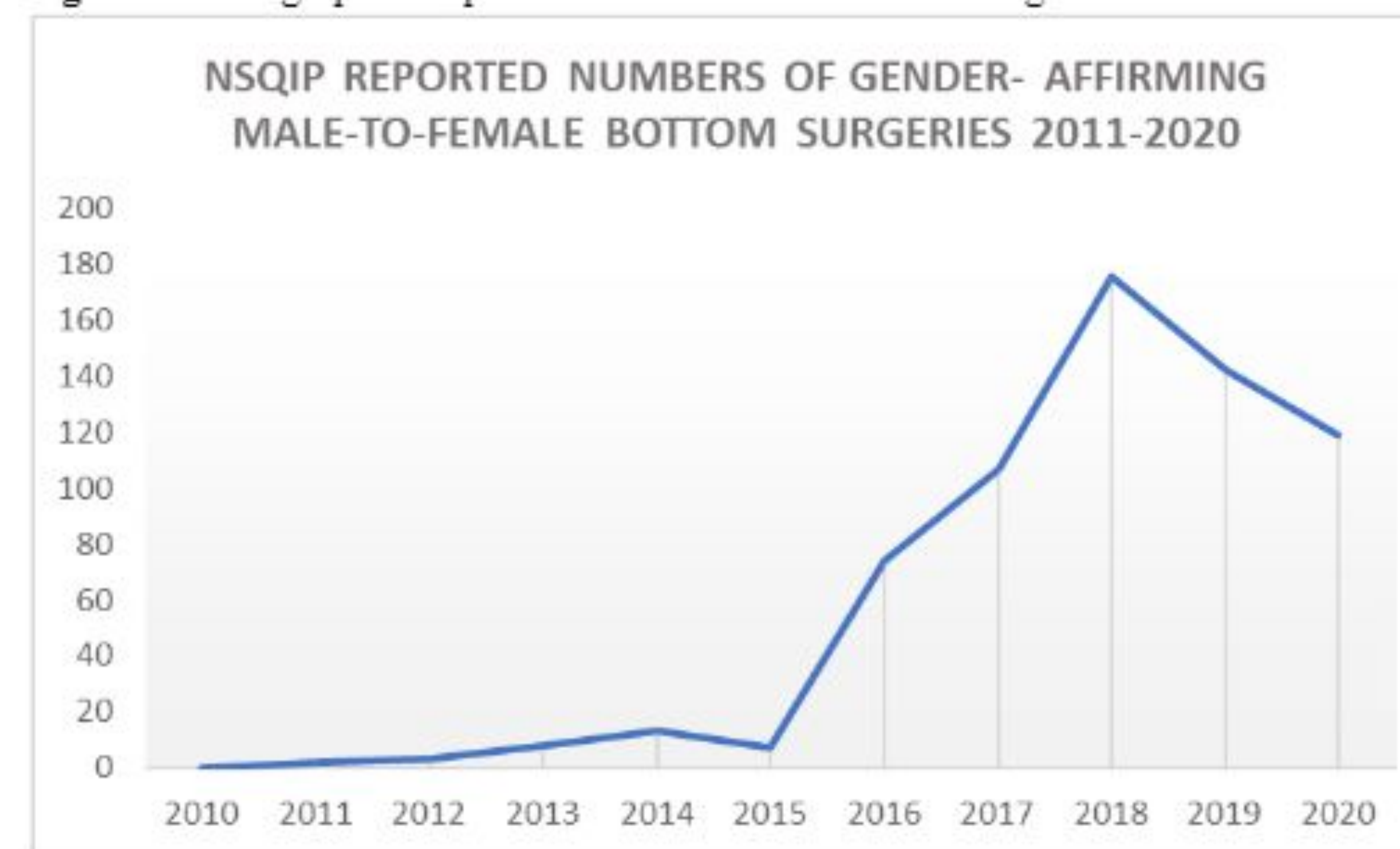
Table 2. ICD Codes

ICD Code	Description
<b>ICD-9</b>	
302.50	Transsexualism with unspecified history
302.51	Transsexualism with asexual history
302.52	Transsexualism with homosexual history
302.53	Transsexualism with heterosexual history
302.85	Gender identity disorder in adolescents or adults
<b>ICD-10</b>	
F64.0	Transsexualism
F64.1	Gender identity disorder in adults
F64.9	Gender identity disorder, unspecified

## Results

- The total number of gender-affirming male-to-female bottom surgeries from 2010 to 2020 was 651. There has been an increasing trend in MtF bottom surgeries as demonstrated in **Figure 1**.
- From this group, 24 patients were identified as having undergone at least one unplanned reoperation related to the principal operative procedure, while four patients from this group as having undergone a second unplanned reoperation.
- Of those who had undergone at least one unplanned reoperation, the average age at the time of the initial surgery was 41 with a range of 23 to 65 and with a mean BMI of 30.2.
- Most patients identified or were identified as female (N = 22, 92%), while there was also one male and one nonbinary person.

Figure 1. Line graph of reported male-to-female bottom surgeries from 2010-2020



- Of the 23 unplanned reoperations, the majority of them included wound disruption as the complication (N=9), while the other re-operative complications included inflammatory/vascular (N=2) and hematoma/hemorrhage (N=4) as listed in Figure 2. The remaining complications were listed as "others" in the database.
- Analysis of the data showed that most patient demographics, age, race, smoking status, diabetes, and BMI, did not pose risk factors for having an unplanned reoperation.
- History of steroid use for a chronic condition (OR=11.56, p=0.05) showed to be a risk factor for having at least one unplanned reoperation (**Table 3**).
- Operation time (OR=1.27, p=0.04) and red blood cell transfusions proved to be risk factors for undergoing reoperation. Patients who needed a red blood cell transfusion intraoperatively or 72 hours postoperatively were 6.40 times more likely to undergo an unplanned reoperation compared to those who did not need a transfusion (p=0.05).
- Wound disruption posed the greatest risk for undergoing an unplanned reoperation. The reoperation group contained 41% of all wound disruption occurrences from the 651 total MtF bottom surgeries.

Table 3. Multivariate Regression Analysis Results when adjusted for age, race, BMI, smoking status, and diabetes

Variable tested	Odds Ratio	Significance
Wound Disruption	73.9	< 0.001
Chronic Steroid Use	11.6	0.045
Operation Time	1.3	0.038
Bleeding Transfusion	6.4	0.05
History of Hypertension	0.7	0.711
Superficial SSI	3.1	0.494
Deep SSI	1.2	0.909

## Conclusion

- Of the 651 MtF bottom surgeries that were performed from 2010-2020, over one-fifth of the total number of surgeries were performed in 2018 alone.
- Given the growing number of GAS surgeries being performed, it is important to highlight risk factors associated with unfavorable outcomes to improve the quality of interventions for transgender individuals.
- This study utilized the ACS-NSQIP database which has data from more than 700 community and academic hospitals to collect data on unexpected reoperations within 30 days postoperatively in those receiving MtF bottom surgery.
- Across existing studies, neovaginal and meatal stenosis was the most common long-term complications following MtF bottom surgery, and were the most common cause for reoperation in a systematic review of the literature by Dreher et al.<sup>6</sup>
- Analysis of the data did not show a positive correlation between smoking status, diabetes, or BMI and risk for unplanned reoperation. This is not surprising given that providers are unlikely to perform surgeries on patients that are deemed, high-risk surgical candidates.
- The limitations of this study include the small sample size of those who underwent at least one unexpected reoperation related to the principal procedure (n=24). The small sample size was likely due to the fact that the NSQIP database only includes complications within a 30-day window.

## References

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