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# Providing Gender Confirmation Surgery at an Academic Medical Center: Analysis of Use, Insurance Payer, and Fiscal Impact



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**BACKGROUND:** Expansion of insurance coverage for gender confirmation surgery (GCS) has led to a large demand for GCS in the US. We sought to determine the financial impact of providing comprehensive GCS services at an academic medical center.

**METHODS:** This was a cross-sectional study of patients older than 18 years who presented for GCS between January 1, 2015 and July 31, 2018 at a single academic medical center. The use of GCS services and associated work relative value units is reported. Departmental and hospital-level operating (profit) margins are reported relative to other hospital services, as well as the payer mix.

**RESULTS:** A total of 818 patients underwent 970 GCS procedures between January 2015 and July 2018. Mean (SD) age was 35.32 (12.84) years. Four hundred and ninety-three (60.3%) patients underwent a masculinizing procedure, and 325 (39.7%) had a feminizing procedure. The most commonly performed procedure was chest masculinization (n = 403). The GCS case volume grew to generate 23.8% (plastic surgery) and 17.8% (urology) of total annual departmental work relative value units, and was associated with positive operating margins after recouping new faculty hiring costs. There were positive operating margins for GCS procedures for the hospital system that compare favorably with other common procedures and admissions. Medicare and Medicaid remained the most common payer throughout the study period, but dropped from 70% in 2015 to 48% in 2018.

**CONCLUSIONS:** We found that providing GCS at our academic medical center is profitable for both the surgical department and the hospital system. This suggests such a program can be a favorable addition to academic medical centers in the US. (J Am Coll Surg 2019;229:479–486. © 2019 by the American College of Surgeons. Published by Elsevier Inc. All rights reserved.)

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During the last 5 years, several watershed events have improved access to transgender medical care.<sup>1-3</sup> These include the Affordable Care Act, which increased access

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to health insurance nationwide, and a successful lawsuit that led to the inclusion of gender confirmation surgery (GCS) as a covered benefit for Medicare beneficiaries. In 2016, an estimated 3,200 GCS procedures were performed in the US—a nearly 20% rise since 2015<sup>4</sup>—which suggests that these policy changes improved patient's access to GCS. This access, however, remains variable across geographic boundaries and depends not only on the state legislature but also on hospital system's willingness to offer GCS. There are various barriers that healthcare systems must overcome to provide this necessary care. It is an unfortunate reality that political, religious, and cultural barriers can prevent a hospital from embarking into this field.<sup>5</sup> Hospitals can struggle to find trained providers to treat this population and/or have fiscal concerns about the sustainability of such a program, given that

**Abbreviations and Acronyms**

FGCS	= facial gender confirmation surgery
GCS	= gender confirmation surgery
OHSU	= Oregon Health & Science University
OR	= operating room
PRS	= plastic and reconstructive surgery
wRVU	= work relative value unit

transgender persons are at a higher risk of living below the poverty line and must rely on Medicare or Medicaid for their healthcare.<sup>6</sup>

Before January 1, 2015, Oregon did not cover treatment of gender dysphoria.<sup>7</sup> In 2014, the Oregon Health Authority's Health Evidence Review Commission added hormone therapy and GCS to the list of benefits based on evidence for its efficacy in treating dysphoria and reducing depression, anxiety, and suicide risk.<sup>7</sup> Oregon Health & Science University (OHSU) is Oregon's largest tertiary care center and began routinely offering GCS after these policy changes. The OHSU Transgender Health Program was formed in 2015 and is the central body for coordinating comprehensive transgender health services, as well as promoting advocacy, research, and education in this area.

As academic medical centers and health systems around the country decide whether to start a GCS program, they must consider the use and financial impact of such a program. This study examines the financial impact of a comprehensive GCS program at an academic center. We analyzed surgical care use trends and case volume, payer distribution, and the profitability of GCS to the hospital system and to the department or division.

**METHODS**

This is a single-institution, cross-sectional study of all transgender patients older than the age of 18 years who presented for GCS between January 1, 2015 and July 31, 2018. The study was approved by our IRB and a waiver was granted for consent. Data were obtained from hospital and departmental billing records and the electronic health record.

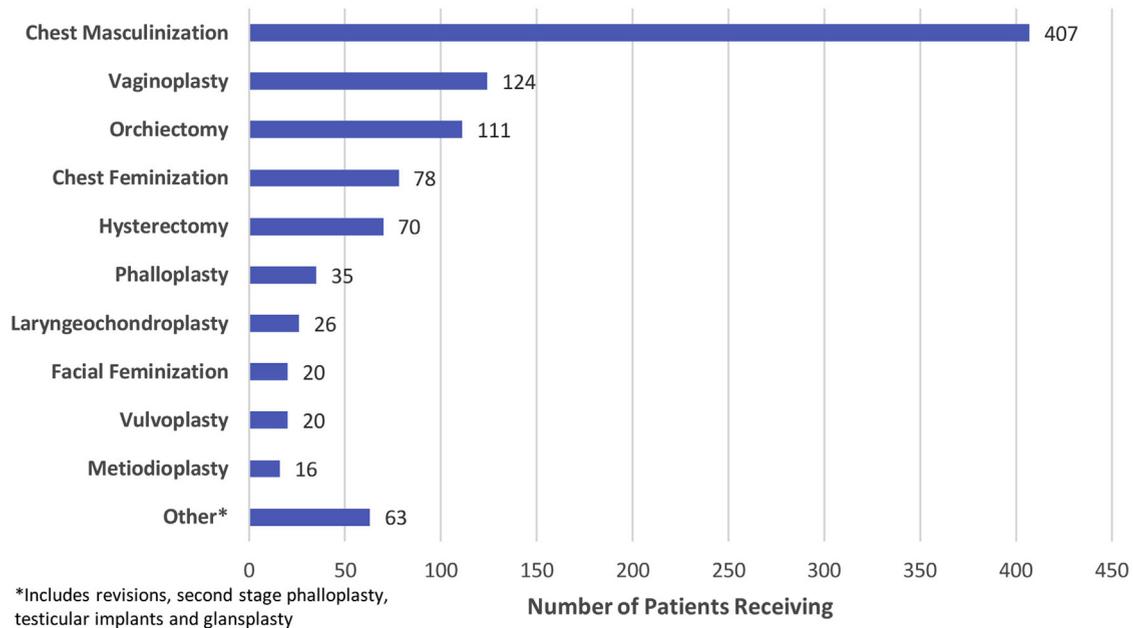
Demographic and case-specific data were obtained for all patients who underwent GCS. Fiscal and insurance data were limited to Plastic and Reconstructive Surgery (PRS) and Urologic Surgery procedures because they comprised the largest proportion of GCS services. At OHSU, Urologic Surgery is its own department, and PRS is a division within the Department of Surgery. The OHSU fiscal year is from July 1 to June 30, therefore, departmental fiscal data are reported from July 1, 2014 to June 30, 2018. Surgical services included both

inpatient and outpatient procedures. For those procedures where there were multiple CPT codes assigned on a given date and body region (eg phalloplasty), we grouped those codes together to create a single "surgical encounter," so as not to overestimate the surgical volume. For procedures that included 2 distinct anatomic areas (eg chest augmentation and laryngochondroplasty), these were counted as 2 separate procedures. A vulvoplasty that included a penectomy and orchiectomy was coded as "vulvoplasty." Revisions or subsequent procedures after vaginoplasty or phalloplasty were coded as "other" (Fig. 1). Insurance payers were grouped using our institution's standardized categories for tracking reimbursement claims.

To measure productivity, total work relative value units (wRVU) were recorded for the procedures. The proportion of wRVUs associated with GCS compared with the total wRVUs for each department was calculated and examined for each fiscal year.

To calculate the financial impact of GCS, we examined what income that GCS provided to Urologic Surgery and PRS, as well as the income GCS generated for the hospital system.

To show the divisional or departmental financial impact of GCS, we calculated the revenue and costs for providing GCS services. Total professional income was calculated for each fiscal year and filtered by ICD-9 codes (302.85, 302.6, and 302.5). Costs were defined as expenses (ie salaries; benefits; malpractice insurance; shared clinic expenses, including rental costs for the clinic space; and taxes) that were paid to support the surgical services. To estimate GCS-specific costs, we used the percentage of revenue generated by GCS services for each GCS provider and the division/department as a whole. The provider-specific percentage was used to estimate the overall cost associated with their employment. The percentage of GCS collections relative to the total divisional/departmental revenue was used to estimate the shared clinic expenses. The combined costs were then subtracted from the revenue to show the profit generated by GCS services. The percentage of the revenue that is profit is the operating margin (operating income divided by revenue). We then looked at the wRVUs associated with the most common procedures and the revenue dollars per wRVU. These data are from fiscal year 2018 and are for Medicaid/Medicare contracts only. For the phalloplasty procedure, we perform this procedure in stages, and these data reflect the first stage, which includes free tissue transfer, creation of the neo-urethra, nerve coaptation, split thickness skin grafting, Integra (Integra Lifesciences Corp) placement on the arm donor site, and negative pressure dressing. For facial gender confirmation surgery (FGCS), we used a representative combination of procedures, including brow lift, frontal sinus setback, and



**Figure 1.** Frequency of gender confirmation surgery services performed, January 2015 through July 2018.

jaw contouring. Finally, we examined operative efficiency for the procedures (wRVUs per minute of operating room [OR] time), relative to other common PRS procedures.

Urologic Surgery did hire a nurse practitioner for GCS patients during the study period, and that cost was included. Plastic and Reconstructive Surgery hired an additional medical assistant during the study period to support the overall growth of the division, and that cost was also included in the shared clinic expenses. The hiring of a dedicated GCS faculty within PRS came with a paid leave of 1 month and associated travel allowance, both of which were included in the cost analysis. Otherwise, there were no other new costs to support the GCS program, such as additional clinic space, human resources, or equipment.

The OHSU Healthcare System fiscal data were included from January 1, 2015 until December 31, 2017. Billing records were reviewed to tabulate total charges, direct and indirect costs, net revenue, and operating margin. Charges were defined as the sum of all hospital-billed professional fees and facility fees charged to the payer(s). Direct costs were those costs incurred by OHSU Healthcare in providing care to patients (labor expenses, medical and non-medical supplies, equipment services, and sterile processing). Indirect costs included overhead expenses not directly related to a specific surgical service, such as information technology services, administration, housekeeping, and maintenance. Net revenue is the amount received from the payer, based on the collection rate for that payer. Operating income is the revenue

minus direct and indirect hospital costs, and this was used to calculate operating margin.

Due to the proprietary nature of the financial data, we were not allowed to publish dollar amounts. Instead, for each procedure, we calculated the operating margin. These percentages were ranked from largest to smallest. The most profitable procedure was assigned a rank value of 1.0, and all other procedures were ranked according to their profitability relative to the most profitable procedure. For example, for a rank value of 0.5, it was half as profitable as the most profitable procedure. A value  $<0$  meant the service was not profitable. We selected several index GCS procedures to use for comparison with other surgical specialties, for 1-, 6-, and 9-day admissions.

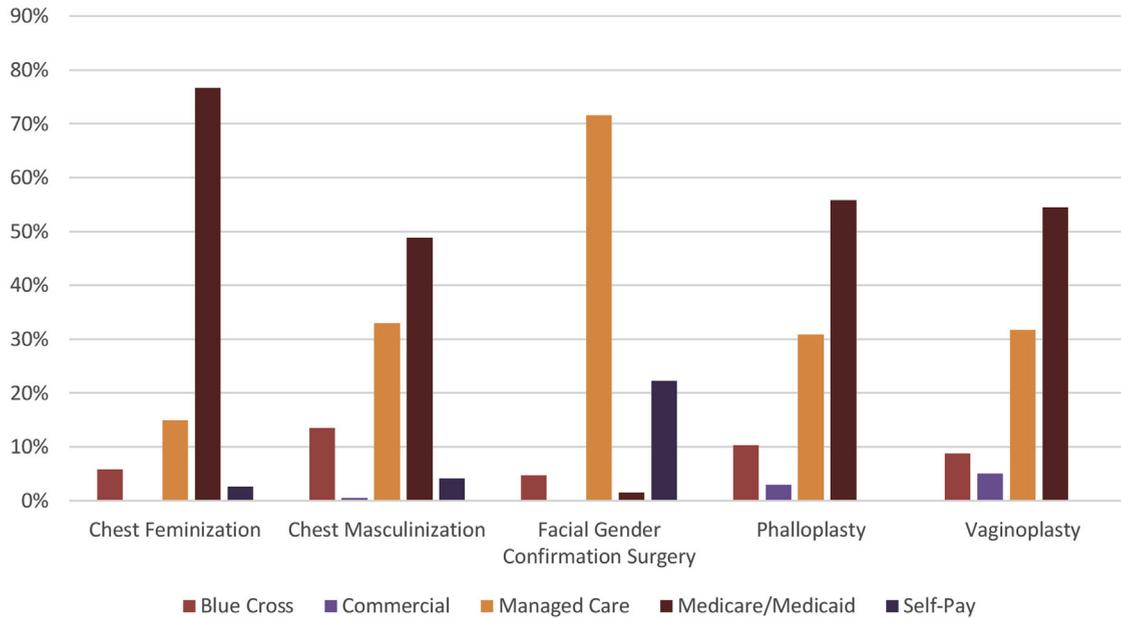
## RESULTS

### Procedure data

A total of 818 patients underwent 970 distinct GCS procedures between January 2015 and July 2018. Mean (SD) age was 35.32 (12.84) years. Four hundred and ninety-three (60.3%) patients had masculinizing GCS, and 325 patients (39.7%) had feminizing GCS. The most commonly performed procedure was chest masculinization, followed by vaginoplasty and then orchiectomy (Fig. 1).

### Payer distribution

In 2015, the most common insurance payers were Medicaid and Medicare (70%), followed by managed



**Figure 2.** Insurance payer distribution by gender confirmation surgery service, 2018.

care (24%), self-pay (4%), and Blue Cross (2%). In 2018, the most common insurance payers were Medicaid and Medicare (48%), managed care (38%), Blue Cross (12%), commercial (1%), and self-pay (1%). The lowest reimbursement rates were paid through Medicare and Medicaid. **Figure 2** shows the payer distribution by procedure for fiscal year 2018. Facial gender confirmation surgery had the highest proportion of self-pay (22.3%) and managed-care payers (71.55%). Chest feminization had the highest proportion of Medicaid and Medicare payers (76.6%).

#### Financial analysis: departmental and divisional data

In 2015, the percentage of wRVU attributable to GCS was a small fraction of the total wRVU generated. By 2017, GCS had grown from 2.4% to 23.8% of total divisional wRVUs for PRS, and 0.5% to 17% of total departmental wRVUs for Urologic Surgery. Profitability, as measured by operating margin, is reported for Urologic Surgery and PRS, respectively (**Table 1**). For both groups, there was a decline in profitability directly attributable to hiring new faculty and midlevel providers (Urologic Surgery).

The procedure generating the highest wRVU was vaginoplasty (98), followed by phalloplasty (83) and chest feminization had the highest revenue per wRVU (\$58/wRVU) (**Fig. 3**). When we examined operative efficiency (wRVUs per minute of OR time) for PRS, direct-to-implant breast reconstruction was the most efficient (0.24 wRVU/min), followed by chest masculinization

(0.23 wRVU/min) and laryngochondroplasty (0.18 RVU/min).

#### Financial analysis: hospital system data

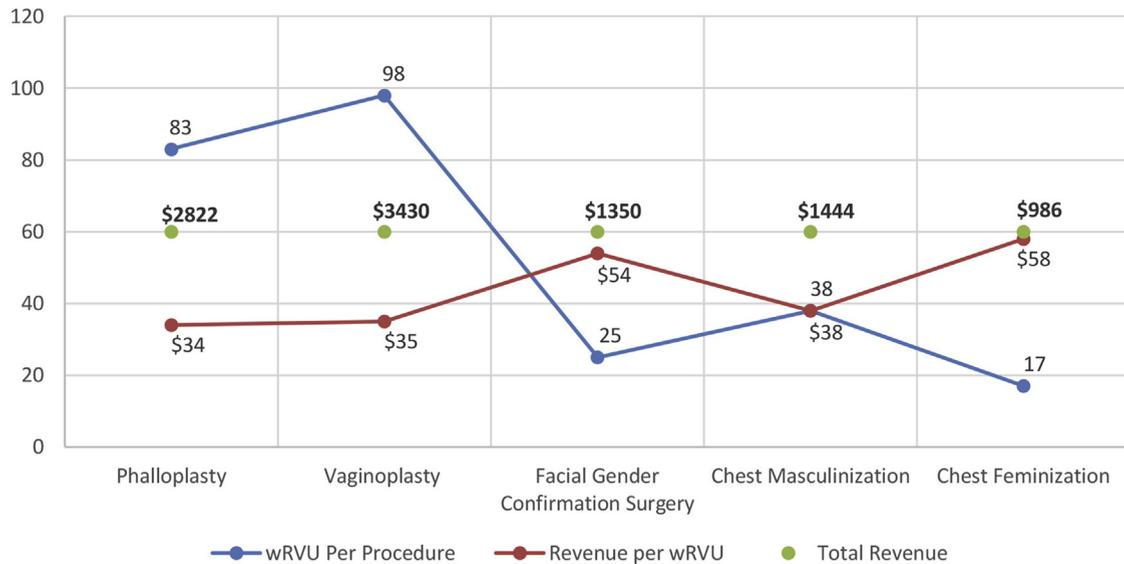
Facility costs, revenues, and profits were analyzed for common GCS procedures and compared with hospital wide averages for 1-, 6, and 9-day admissions (**Tables 2–4**). For single-day admissions (including outpatient surgery), all services had positive profit margins, with Gastroenterology showing the highest (rank = 1.0). Among GCS procedures, FGCS demonstrated the highest (rank = 0.88), and chest feminization had the lowest (rank = 0.37). For 6-day admissions, vaginoplasty had the highest overall operating margin (rank = 1.00). For 9-day admissions, Pulmonary/Critical Care had the highest operating margin, and phalloplasty was about half as profitable (rank = 0.54).

#### DISCUSSION

Hospital systems and physicians operate in a fiscal reality that has become increasingly difficult.<sup>8–10</sup> Surgical specialties

**Table 1.** Departmental and Divisional Operating Margin for Gender Confirmation Surgery, Fiscal Years 2015 to 2018

Fiscal year	Urologic surgery, %	Plastic and reconstructive surgery, %
2015	6.49	15.17
2016	0.07	2.22
2017	13.1	−7.83
2018	1.15	25.01



**Figure 3.** Common gender confirmation surgery services' work relative value units (wRVU) per procedure and revenue dollars per wRVU, Medicaid/Medicare payer, 2018.

provide unique, essential services to the hospital system. It is important to demonstrate their worth within a cost-constrained environment, to ensure they maintain the support necessary to be successful. Multiple studies have demonstrated the positive impact of surgical specialty services, such as plastic surgery, on hospital revenue and productivity across various plastic surgery subspecialties.<sup>9-13</sup> Ostensibly, the purpose of these studies is to examine the role of Surgery within an evolving healthcare market that is characterized by rising costs, insufficient provider workforce, and declining reimbursement.<sup>8,10</sup> The recent emergence of academic centers offering GCS within the US provides an opportunity to examine the value of GCS to the academic healthcare system.

### Financial impact of gender confirmation surgery

We found that GCS procedures are fiscally favorable at both the hospital and departmental levels. Specifically, vaginoplasty and phalloplasty have a favorable operating margin for hospital admissions with comparable lengths of stay. This is likely due in part to the lower direct costs associated with these procedures (ie no medical implants or ICU admissions, and relatively low need for medications or medical supplies postoperatively). Facial gender confirmation surgery was the most profitable single-day GCS procedure and chest feminization was the least. The charges are relatively similar between the 2 cases (chest feminization charges are on average 11% less than those for FGCS). However, the reimbursement rate is notably different between the 2 procedures. Facial gender confirmation surgery has a higher reimbursement,

which is 37% larger than breast augmentation, as most payers covering FGCS are managed care or self-pay and Medicaid and Medicare are most common for chest feminization (Fig. 2). Otherwise, the direct and indirect costs are the same for both procedures.

On the departmental side, GCS procedures maintained a consistently positive operating margin, after recouping costs of hiring new faculty, and also making up a larger

**Table 2.** Relative Rank of Hospital Operating Margins for 1-Day Length of Stay Admissions, 2015 to 2017

1-day admission type	Scaled operating margin
Gastroenterology	1.00
Pulmonology/critical care	0.99
Trauma	0.92
Ophthalmology	0.89
Facial gender confirmation surgery	0.88
General surgery	0.83
Neuroscience	0.72
Spine	0.68
Medicine	0.67
Oncology	0.63
Chest masculinization	0.62
Renal/urology	0.60
Orthopaedic	0.59
Hepatobiliary	0.56
Otolaryngology	0.55
Cardiac	0.54
Vascular	0.45
Chest feminization	0.37

**Table 3.** Relative Rank of Hospital Operating Margins for 6-Day Stay Admissions, 2015 to 2017

6-day admission type	Scaled operating margin
Vaginoplasty	1.00
Trauma	0.91
Pulmonology/critical care	0.89
Cardiac	0.80
Neuroscience	0.69
General surgery	0.55
Hepatobiliary	0.42
Spine	0.32
Oncology	0.28
Ophthalmology	0.18
Gastroenterology	0.17
Otolaryngology	0.16
Orthopaedic	0.06
Vascular	0.03
Renal/urology	-0.38
Medicine	-1.26

proportion of departmental wRVUs. Upfront costs of hiring new GCS faculty are responsible for the decline in operating margins (Table 1). In both Urologic Surgery and PRS, GCS has grown to be a significant contributor to annual wRVUs (17.5% and 24%, respectively). Before the addition of a dedicated gender surgeon, there were 4 faculty plastic surgeons (author JH previously performed some GCS), making any new productivity appear relatively large. However, the faculty grew to 7 surgeons by 2017, with a 96% increase in wRVUs for all procedures,

**Table 4.** Relative Rank of Hospital Operating Margins for 9-Day Stay Admissions, 2015 to 2017

9-day admission type	Scaled operating margin
Pulmonology/critical care	1.00
Trauma	1.00
Spine	0.92
Neuroscience	0.70
Cardiac	0.66
Phalloplasty/metoidioplasty	0.54
Gastroenterology	0.51
Hepatobiliary	0.12
General surgery	0.08
Vascular	-0.02
Orthopaedic	-0.03
Oncology	-0.08
Otolaryngology	-0.88
Renal/urology	-1.89
Ophthalmology	-3.10
Medicine	-3.86

and a 56% wRVU increase for non-GCS procedures. For example, breast reconstruction wRVUs increased 12% during this period, suggesting that growth of GCS did not come at the expense of other essential services. Despite the increase in non-GCS procedures, GCS maintained a relatively steep growth curve for PRS. Several factors contributed to this growth, including the high rate of converting GCS consultations to OR bookings, high patient demand, sympathetic social and political conditions in Oregon, and the infrastructure of the Transgender Health Program. Additionally, wRVU allotments for these procedures are favorable (dollars/wRVU) and efficient (wRVU/min OR time).

Financial analyses of surgical services provide some insight for how departments and hospitals balance patient care with fiscal sustainability. Some groups have used financial analysis to determine the profitability of alternate procedures to treat a single diagnosis, such as implant vs autologous breast reconstruction.<sup>13</sup> Hultman<sup>14</sup> reported on the experience of a single institution using “Procedural Portfolio Planning” to increase divisional profitability, while maintaining patient satisfaction and important essential (but low reimbursing) services. These studies provide guidance for departments looking to demonstrate and maximize their worth within a competitive market. However, they run the risk of encouraging hospitals to focus on “optimizing” the balance sheet by showing preference toward operations that show clear profit. Another way to remain competitive is the development of new revenue streams<sup>9</sup> without compromising on the provision of essential—but less profitable—services. Gender confirmation surgery holds tremendous potential for hospital systems to provide care to a population that had until recently been excluded from receiving appropriate, humane care.<sup>6</sup> For instance, in-network use of primary care, endocrinology, and fertility referrals are valued by patients and hospital system alike, and are another way to expand the volume of services provided.

### Insurance payer mix

The lowest reimbursing payers in our study were Medicaid and Medicare. Medicaid access was expanded via the Affordable Care Act but is associated with lower collection rates and lower or negative profit margins.<sup>15,16</sup> The data on whether increasing the number of insured patients via Medicaid is financially beneficial to a hospital system or department are mixed,<sup>15,17</sup> and are an important consideration for assessing sustainability. Despite a relatively high proportion of Medicare and Medicaid patients in our payer mix, we reported profitability at both the hospital and department level. During the course of the study period, this proportion decreased and likely reflects the expansion

of GCS benefits by managed-care and Blue Cross payers. There were no “carve-out” contracts established among our contractual partners for this care. During the study period, the proportion of self-pay declined from 4% to 1%, which likely reflects increased access to insurance plans with GCS coverage. Of note, we do not require third-party insurance for self-pay patients. A particular area of interest when it comes to self-pay is FGCS, as it is generally not included as a covered benefit in most insurance plans. However, companies such as Starbucks now include FGCS as a healthcare benefit in their insurance plans.<sup>18</sup> How our payer mix will evolve in the future remains to be seen. There is a risk that due to long waitlists, we will see a shift of privately insured patients to the private health-care sector, and because out-of-state patients are predominantly privately insured, this patient group might decline. However, we do suspect that the overall trend toward an increase in private or managed-care insurance will continue.<sup>19</sup> We hope this trend is also supported by provision of care that allows a patient population that has traditionally been disenfranchised to achieve their best potential and rise above the poverty line.

### **Demand and access to gender confirmation surgery services**

Despite efforts to curtail the political gains supporting transgender care, and the persistence of many barriers to care, GCS continues to expand.<sup>2,19-22</sup> To meet the demand, there is a need to increase the capacity to provide GCS.<sup>23-25</sup> Despite being a relatively young center, a considerable number of patients travel to OHSU from out of state. Although any institution welcomes this migration, it likely reflects the lack to access of care in other states. To our knowledge, there are only 13 states that have a center offering genital surgery.<sup>26</sup> The lack of regional care for transgender persons is unjust, and development of new GCS programs is one path toward correcting this inequality.

In 2015, only 48 patients received GCS at our institution. In 2017 that increased to 395 patients—a 720% increase. Our growth has outpaced even the most optimistic projections and has expanded the volume of surgical services provided at OHSU. What is notable about the growth of GCS is that during a short period of time, there was an increase in both insurance access and coverage, resulting in a large supply-to-demand mismatch. Although this is similar to expansion of insurance coverage for oncologic breast reconstruction, that did not translate to a rapid rise in women seeking breast reconstruction.<sup>13,27,28</sup> In contrast, the increase in insurance access in some states has led to long queues to access GCS. Patients migrate to states with favorable transgender rights and surgical

centers. Oregon has both characteristics, which is reflected in our patient volume. It is conceivable that we are seeing a backlog of patient seeking GCS that will subside at some point. Presently, however, most centers that are offering GCS are experiencing excessively long waitlists. We expect that despite the unknown steady state, most existing and new centers will continue to see a high demand for the foreseeable future. In addition, it is to be expected that institutions with a focus on these services will see a substantial amount of revision and secondary procedures.

### **Limitations**

Our study has several limitations. The cost of maintaining the Transgender Health Program (2 social workers and office space) is supported by the School of Medicine and therefore was not included. Neither Urologic Surgery nor PRS needed to purchase new clinic space for the GCS program, but this might not be the case at other centers. Using the historic market rate of \$60 per square foot per year paid by PRS for the clinic, we estimated that for an institution needing to purchase new commercial space for a GCS program they could expect to pay approximately \$22,250 for additional space. This equates to 2 clinic rooms (103 square feet per room) for 2 days of clinic per week and 2 provider office spaces (110 square feet per room) for 5 days per week. The divisional data of PRS include an apprenticeship residency model (wherein residents are dedicated to working with each attending for 1 to 2 months), which results in another outpatient provider to see postoperative patients. At institutions where this model is not used, the increase in volume might necessitate an increase in midlevel practitioners, as seen in the Urologic Surgery departmental data. Our data represent the unique experience of our institution and its contracts and might not be entirely generalizable. Likewise, the patient volume can represent either a backlog of untreated patients, unique social or political factors in Oregon, and/or a migratory phenomenon wherein patients travel from beyond the typical catchment basin. Finally, there is a justifiable interest in understanding the social backgrounds and gender diversity of our patients to provide better care. However, this was inconsistently documented and therefore excluded.

### **CONCLUSIONS**

There is a recent trend toward increased access to and use of GCS services in this country. However, concerns about financial viability can limit the expansion of GCS at academic centers. We found that there is a large demand for GCS, and that it comprises a significant proportion of the yearly wRVUs at our academic center for PRS and

Urologic Surgery. In addition, provision of GCS appears profitable for our hospital system and our departments, given a payer mix that includes a balance of private and public payer insurance carriers.

### Author Contributions

Study conception and design: Esmonde, Heston, Morrison, Berli

Acquisition of data: Esmonde, Heston, Morrison, Rogers, Berli

Analysis and interpretation of data: Esmonde, Heston, Morrison, Rogers, Liem, Amling, Dugi, Hansen, Berli

Drafting of manuscript: Esmonde, Heston, Morrison, Berli

Critical revision: Esmonde, Heston, Morrison, Rogers, Liem, Amling, Dugi, Hansen, Berli

### REFERENCES

- Berli JU, Knudson G, Fraser L, et al. What surgeons need to know about gender confirmation surgery when providing care for transgender individuals: a review. *JAMA Surg* 2017;152:394–400.
- Baker KE. The future of transgender coverage. *N Engl J Med* 2017;376:1801–1804.
- Lane M, Ives GC, Sluiter EC, et al. Trends in gender-affirming surgery in insured patients in the United States. *Plast Reconstr Surg Glob Open* 2018;6[4]:e1738.
- Gender confirmation surgeries rise 20% in first ever report American Society of Plastic Surgeons. American Society of Plastic Surgeons. Available at: <https://www.plasticsurgery.org/news/press-releases/gender-confirmation-surgeries-rise-20-percent-in-first-ever-report>. Accessed August 16, 2018.
- Dy GW, Osburn NC, Morrison SD, et al. Exposure to and attitudes regarding transgender education among urology residents. *J Sex Med* 2016;13:1466–1472.
- James SE, Herman JL, Rankin S, et al. The Report of the 2015 U.S. Transgender Survey. Washington, DC: National Center for Transgender Equality; 2016.
- Prioritized List: Guideline for Gender Dysphoria. Available at: <http://www.oregon.gov/OHA/HPA/CSI-HERC/FactSheets/Gender-dysphoria.pdf>. Accessed August 16, 2018.
- Huber TS, Carlton LM, O'Hern DG, et al. Financial impact of tertiary care in an academic medical center. *Ann Surg* 2000;231:860–868.
- Chao AH, Khansa I, Kaiser C, et al. The differential impact of plastic surgery subspecialties on the financial performance of an academic clinical practice. *Plast Reconstr Surg* 2014;133:748e–755e.
- Wang TY, Nelson JA, Corrigan D, et al. Contribution of plastic surgery to a health care system: our economic value to hospital profitability. *Plast Reconstr Surg* 2012;129:154e–160e.
- Alderman AK, Storey AF, Chung KC. Financial impact of emergency hand trauma on the health care system. *J Am Coll Surg* 2008;206:233–238.
- Hasan JS, Chung KC, Storey AF, et al. Financial impact of hand surgery programs on academic medical centers. *Plast Reconstr Surg* 2007;119:627–635.
- Sando IC, Chung KC, Kidwell KM, et al. Comprehensive breast reconstruction in an academic surgical practice: an evaluation of the financial impact. *Plast Reconstr Surg* 2014;134:1131–1139.
- Hultman CS. Procedural portfolio planning in plastic surgery, part 1: strategic changes in clinical practice to increase physician revenue, improve operative throughput, and maintain patient satisfaction. *Ann Plast Surg* 2016;76[Suppl 4]:S344–S346.
- Khansa I, Khansa L, Pearson GD, Jain SA. Effects of the Affordable Care Act on payer mix and physician reimbursement in hand surgery. *J Hand Surg* 2018;43:511–515.
- Odom EB, Schmidt AC, Myckatyn TM, Buck DW 2nd. A cross-sectional study of variations in reimbursement for breast reconstruction: is a healthcare disparity on the horizon? *Ann Plast Surg* 2018;80:282–286.
- Khansa I, Khansa L, Pearson GD. Surgeon reimbursements in maxillofacial trauma surgery: effect of the Affordable Care Act in Ohio. *Plast Reconstr Surg* 2016;137:613–618.
- Dahlstrom L. "They are lifesaving": Starbucks offers expanded benefits for trans people. Available at: <https://news.starbucks.com/news/they-are-lifesaving-starbucks-offers-expanded-benefits-for-trans-people>. Accessed August 16, 2018.
- Canner JK, Harfouch O, Kodadek LM, et al. Temporal trends in gender-affirming surgery among transgender patients in the United States. *JAMA Surg* 2018;153:609–616.
- Learmonth C, Vilorio R, Lambert C, et al. Barriers to insurance coverage for transgender patients. *Am Obstet Gynecol* 2018;219:272.e1–272.e4.
- Tran BNN, Epstein S, Singhal D, et al. Gender affirmation surgery: a synopsis using American College of Surgeons National Surgery Quality Improvement Program and National Inpatient Sample Databases. *Ann Plast Surg* 2018;80[Suppl 4]:S229–S235.
- Arnold JD, Nelson AE, Loubier EM. Trends in insurance coverage for gender-affirming surgeries. *JAMA Surg* 2018;153:972.
- Morrison SD, Smith JR, Mandell SP. Are surgical residents prepared to care for transgender patients? *JAMA Surg* 2018;153:92–93.
- Shekter CC, Razdan SN, Disa JJ, et al. Conceptual considerations for payment bundling in breast reconstruction. *Plast Reconstr Surg* 2018;141:294–300.
- Massenburg BB, Morrison SD, Rashidi V, et al. Educational exposure to transgender patient care in otolaryngology training. *J Craniofac Surg* 2018;29:1252–1257.
- State Maps of Laws and Policies: Transgender Healthcare. Human Rights Campaign. Available at: <https://www.hrc.org/state-maps/transgender-healthcare>. Accessed August 16, 2018.
- Albornoz CR, Bach PB, Mehrara BJ, et al. A paradigm shift in US breast reconstruction: increasing implant rates. *Plast Reconstr Surg* 2013;131:15–23.
- Reuben BC, Manwaring J, Neumayer LA. Recent trends and predictors in immediate breast reconstruction after mastectomy in the United States. *Am J Surg* 2009;198:237–243.