

# Gender-Affirming Hormone Therapy Spending and Use in the USA, 2013–2019



J Gen Intern Med 38(1):260–2  
DOI: 10.1007/s11606-022-07693-0  
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## BACKGROUND

Gender-affirming hormone therapy, the suppression of endogenous sex hormones and maintenance of affirmed sex hormones, is a safe and effective medical therapy for transgender and gender diverse (TGD) patients experiencing gender dysphoria.<sup>1,2</sup> Unfortunately, sociopolitical determinants such as insurance coverage, state laws that prohibit gender-affirming care, and disparate rates of poverty influence access and adherence to gender-affirming hormone therapy among TGD individuals, particularly those with intersecting racial, ethnic, and sexual identities.<sup>3,4</sup>

## OBJECTIVE

To investigate trends in the use of and out-of-pocket spending for hormone therapies filled by commercially insured patients with diagnoses for gender dysphoria between 2013 and 2019.

## METHODS

We used MarketScan Commercial Claims data to identify individuals with diagnoses for gender dysphoria and their prescription fills for hormone therapy (testosterone or estrogen) from January 2013 to December 2019. Individuals were identified using the following International Classification of Disease codes for gender dysphoria: 302.5, 302.51, 302.52, 302.53, F64.0, F64.2, F64.1, F64.8, F64.9, Z87.890. We summarized inflation-adjusted median reimbursements per claim (contributions made by the health plan and enrollee) and out-of-pocket cost for a standardized fill (30-day supply equivalent) for the five most frequently filled feminizing and masculinizing hormone therapies in 2019. We also used the website GoodRx to determine the current average retail price and lowest pharmacy cash price available for these medications for patients without insurance coverage. This study was

deemed exempt from review by the Vanderbilt University institutional review board.

## FINDINGS

There were 39,190 unique individuals with gender dysphoria (61,117 person-years) and 78,161 drug fills among hormone users (21,356 person-years) included in the analysis. Between 2013 and 2019, the number of gender dysphoria diagnoses per 100,000 enrollees increased by 695% from 8.1 to 64.4. The number of hormone therapy users with gender dysphoria diagnoses per 100,000 enrollees increased similarly by 781% from 2.7 to 23.8 (Fig. 1). Across all study years, the proportion of insured adults with gender dysphoria diagnoses who filled a hormone therapy prescription ranged from 32.4 to 37.6%. In 2019, median prices for feminizing and masculinizing hormone therapy ranged from \$6.76 to \$91.15 and \$31.82 to \$398.99, respectively (Table 1). Median out-of-pocket costs ranged from \$5.00 to \$10.71 and \$10.00 to \$12.86 for feminizing and masculinizing hormone therapy, respectively. GoodRx cash pay prices in 2022 were generally lower than associated median total prices and lower than insured patient out-of-pocket costs for several generic drug products (estradiol tablets [2 mg, 1 mg, and 0.5 mg], testosterone cypionate [200 mg/mL], and depo-testosterone [200 mg/mL]).

## DISCUSSION

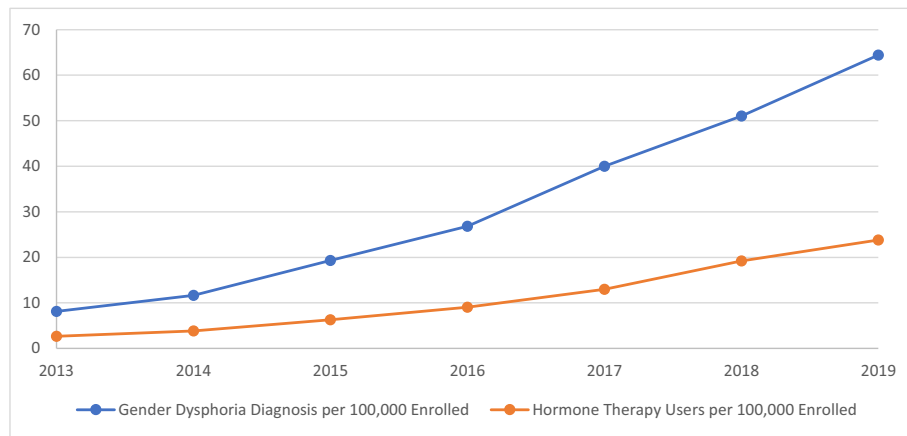
There was a substantial increase in commercially insured individuals with claims for gender dysphoria and gender-affirming hormone therapy use between 2013 and 2019. However, the proportion of insured adults with claims for gender dysphoria who filled a hormone therapy prescription remained relatively stable over this period. These patterns suggest that only a portion of insured TGD individuals seek or fill gender-affirming hormone therapy under insurance. It is also likely that some TGD individuals obtain these prescriptions outside of insurance benefits, given the relatively low cash prices for many commonly used hormone therapies.

There are several limitations to note. First, we rely on diagnosis codes to identify gender dysphoria. Coding for and coverage of gender dysphoria has changed over time which may make year-to-year comparisons unstable. Additionally, we observe only fills among those whose

Received March 7, 2022

Accepted May 31, 2022

Published online June 13, 2022



**Figure 1** Gender dysphoria claims and hormone therapy users per 100,000 commercially insured individuals, 2013–2019. Hormone therapy users are identified among individuals with gender dysphoria International Classification of Disease 9<sup>th</sup> Edition (ICD-9) codes for the period before October 2015 and with International Classification of Disease 10<sup>th</sup> Edition (ICD-10) codes for the period October 2015 and after.

**Table 1** Spending for Gender-Affirming Hormone Therapy Among Commercially Insured Individuals in 2019<sup>a</sup>

	Total cost, median (IQR), \$ <sup>b</sup>	Out-of-pocket costs, median (IQR), \$ <sup>b</sup>	Average retail price, \$ <sup>c</sup>	Lowest GoodRx price, \$ <sup>c</sup>
<b>Feminizing hormone therapy</b>				
Estradiol (2 mg tablet)	15.93 (10.06 to 28.96)	7.00 (4.00 to 10.00)	13.83	3.53
Estradiol (1 mg tablet)	10.24 (7.17 to 17.68)	5.85 (3.33 to 9.74)	12.95	2.53
Estradiol transdermal (twice-weekly, 0.1 mg/24 h)	91.15 (69.91 to 164.83)	10.71 (7.00 to 16.07)	180.98	27.51
Estradiol (0.5 mg tablet)	6.76 (3.73 to 10.13)	5.00 (2.74 to 7.00)	13.79	2.40
Estradiol transdermal (once-weekly, 0.1 mg/24 h)	65.63 (56.36 to 102.21)	7.50 (4.56 to 13.35)	96.15	15.76
<b>Masculinizing hormone therapy</b>				
Testosterone cypionate (200 mg/mL)	31.82 (17.93 to 39.3)	10.71 (6.43 to 15.88)	45.98	6.47
Testosterone (1.62% gel)	398.99 (187.51 to 546.05)	10.00 (5.00 to 15.00)	463.54	51.80
Testosterone (1% gel)	211.51 (170.64 to 327.68)	10.00 (7.77 to 20.00)	220.57	50.63
Testosterone cypionate (100 mg/mL)	44.83 (38.77 to 48.92)	10.71 (7.50 to 21.43)	76.57	22.59
Depo-testosterone (200 mg/mL)	39.75 (21.57 to 61.68)	12.86 (5.36 to 28.30)	29.76	21.30

Abbreviations: IQR, interquartile range

<sup>a</sup>Data source: 2013–2019 MarketScan Database

<sup>b</sup>Spending estimates are for a 30-day supply and adjusted for inflation

<sup>c</sup>Data source: GoodRx website ([www.goodrx.com](http://www.goodrx.com)). Accessed February 6, 2022

insurance reimbursed for services. If services were denied, patients would pay the total price for their medications and would be unobserved. As a result, we likely underestimate hormone therapy use and out-of-pocket costs. Finally, some TGD patients may use hormone therapy for indications unrelated to gender dysphoria. Their prices may be higher or lower than median prices, depending on the dose used.

Among TGD individuals with commercial insurance that provides coverage of gender-affirming hormone therapy, median out-of-pocket costs ranged from \$5.00 to \$12.86 for the most commonly prescribed hormones. The most cost-effective hormone therapies were oral estrogen and injectable testosterone esters. Consumption of healthcare by TGD individuals is growing, and cost-conscious prescribing can improve access to gender-affirming hormone therapy.

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**Declarations:**

**Conflict of Interest:** The authors declare that they do not have a conflict of interest.

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