

Geographic and Gender Disparities in Corneal Transplant Surgeons and Patients in the Medicare Population 2011-2020

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BACKGROUND

- Over 40,000 corneal transplants are performed in the US annually for various indications
- The Eye Bank Association of America (EBAA) statistical reports provide annual data on keratoplasty volumes, surgical indications, and procedures performed; however, the reports do not include patient or surgeon characteristics

STUDY OBJECTIVE

- To describe the patient and surgeon characteristics for corneal transplants performed in the US from 2011-2020

METHODS

Study Design: Retrospective, cross-sectional analysis of Medicare claims data

Population:

- Medicare Fee-For-Service beneficiaries ≥ 65 years old who underwent at least one corneal transplantation between the years of 2011 and 2020
- Ophthalmologists who performed at least one corneal transplant in the study period

Data Collection Corneal transplant claims were identified using Current Procedural Terminology (CPT) codes

- Patient demographics were obtained from the Medicare Master Beneficiary Summary File
- Surgeon demographic information was collected via the National Provider Identifier (NPI) available on each claim

Main Outcomes:

- Patient demographic information included: age, sex, race/ethnicity, and zip code
- Surgeon characteristics included: surgeon sex, years since medical school graduation, and population density of practice location

Statistical Analysis: Pearson's chi-squared tests were used to compare categorical variables

RESULTS

Figure 1. Patient and surgery characteristics for all corneal transplants performed from 2011-2020 (n=148,981)

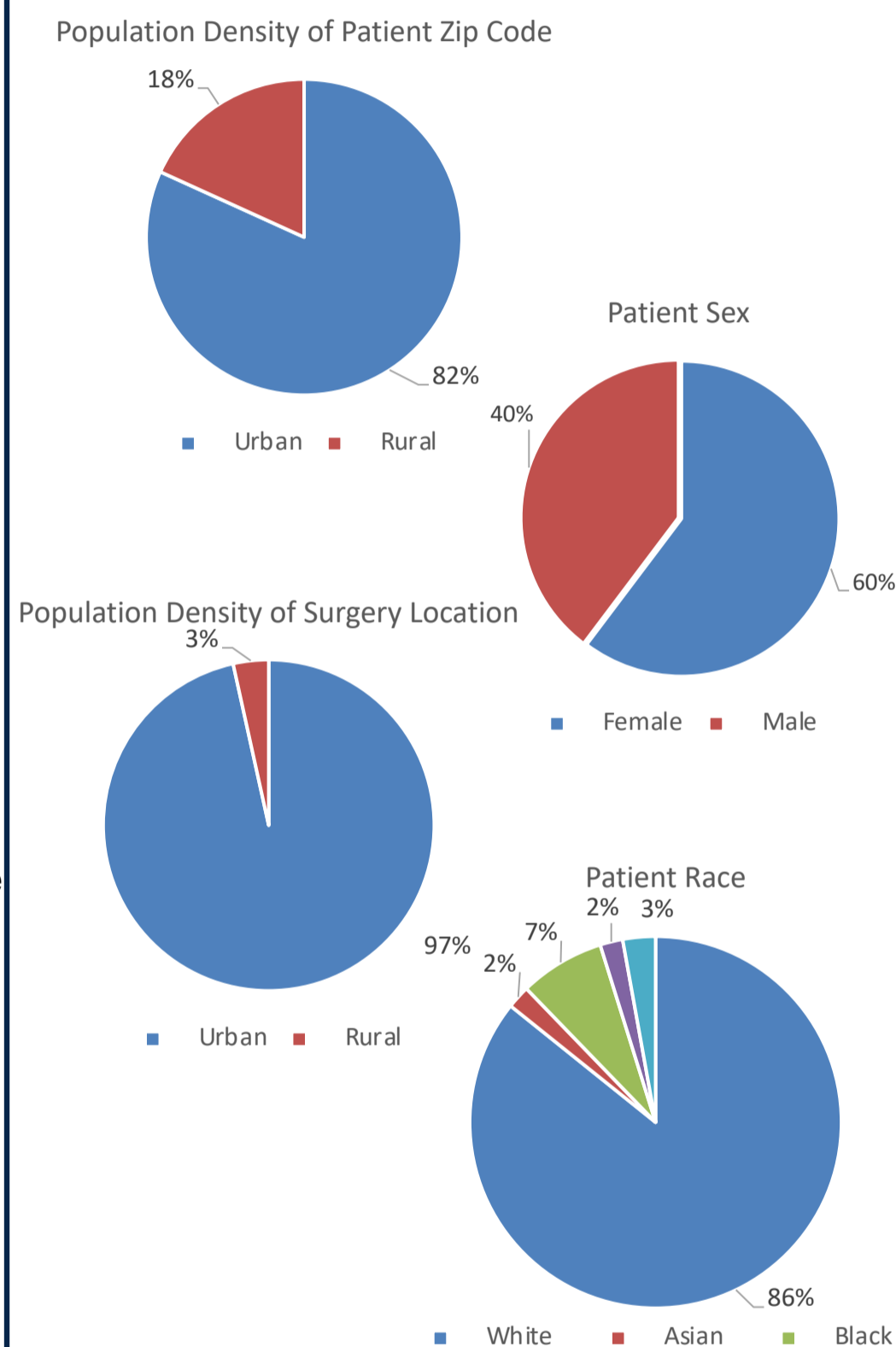
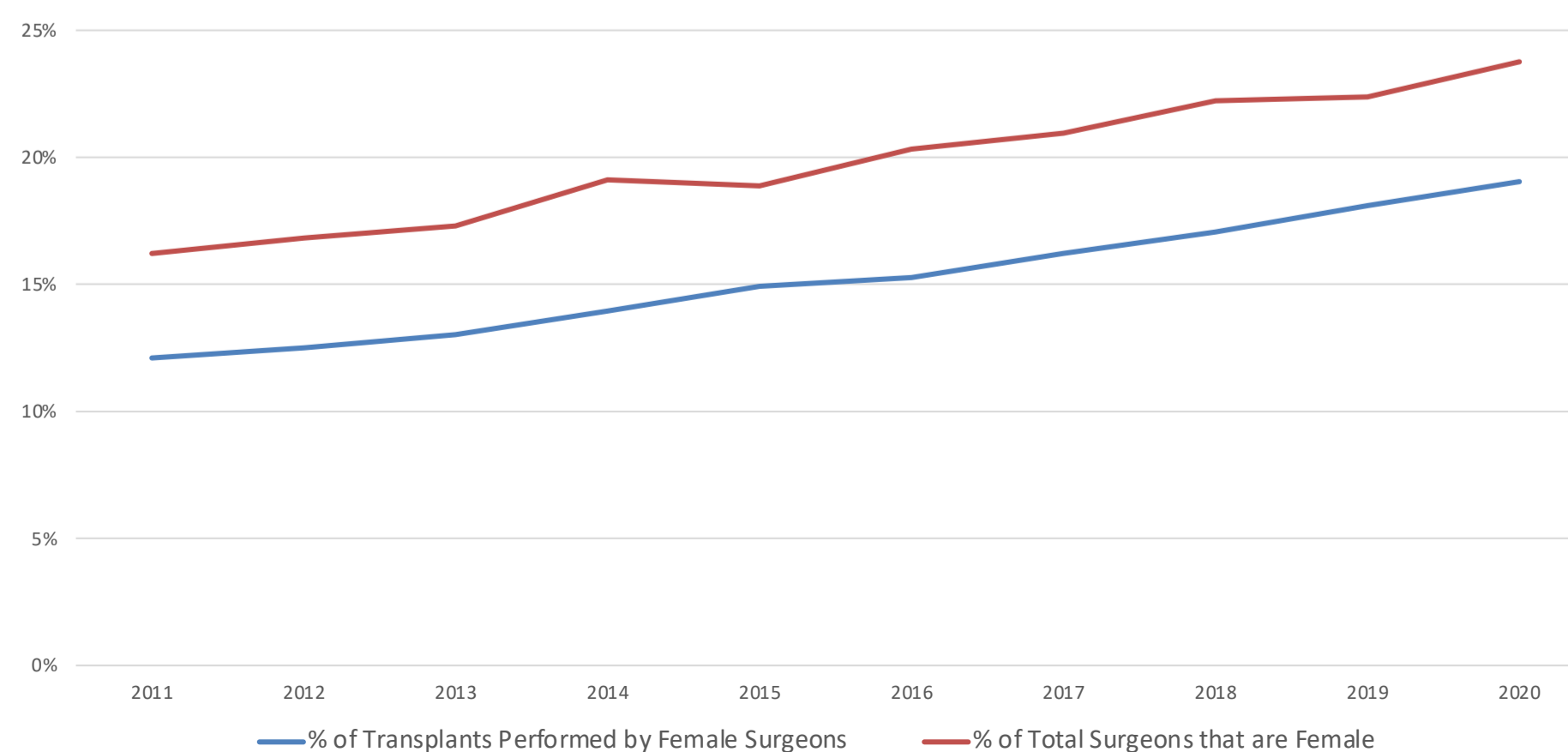


Table 1. Corneal Surgeon Demographics (n=2,972)

| Corneal Surgeon Demographics | | | |
|--|--------------|--------------|-------------|
| | Total | Male | Female |
| Number of surgeons | 2972 | 2311 | 633 |
| Population density of practice location | | | |
| Urban | 2794 (94.01) | 2179 (94.29) | 615 (97.16) |
| Rural | 149 (5.01) | 131 (5.67) | 18 (2.84) |
| Unknown | 29 (0.98) | 1 (0.04) | |
| Years since medical school graduation (last surgery-year graduation) | | | |
| 0-10 | 395 (13.29) | 243 (10.51) | 152 (24.01) |
| 11-20 | 723 (24.33) | 506 (21.90) | 217 (34.28) |
| 21-30 | 625 (21.03) | 522 (22.59) | 103 (16.27) |
| 31+ | 841 (28.30) | 778 (33.67) | 63 (9.95) |
| Unknown | 388 (13.05) | 262 (11.34) | 98 (15.48) |

Figure 2. Proportion of female surgeons in the workforce vs proportion of corneal transplants performed by female transplant surgeons 2011 to 2020



CONCLUSIONS

- There are geographic disparities between patients and corneal transplant surgeons
- Female patients are overrepresented in the transplant population and male surgeons are overrepresented in the surgeon population
- The proportion of female surgeons has steadily increased over the last decade

LIMITATIONS

- Medicare advantage claims were not included since they were missing surgeon characteristics
- Medicare FFS only covers 32% of all transplants conducted in our study period in the US

IMPLICATIONS

- Further research should be done to improve access to corneal transplantation services for rural patients, and to identify barriers to diversity with regards to the patient and surgeon populations for corneal transplants