

# THE EFFECT OF PHYSICIAN GENDER ON PRACTICE SIZES, VOLUMES, AND PHYSICIAN REMUNERATION

## A population-based longitudinal evaluation of male versus female rheumatologists in Ontario

Courtney Marks<sup>1</sup>, Sasha Bernatsky<sup>2</sup>, Janet Pope<sup>3</sup>, Claire Barber<sup>4</sup>, Carter Thorne<sup>5</sup>, Bindee Kuriya<sup>6</sup>, Vandana Ahluwalia<sup>7</sup>, Vicki Ling<sup>8</sup>, J Michael Paterson<sup>8</sup>, Lih Eder<sup>9</sup>, Jessica Widdifield<sup>1,8,10</sup>

<sup>1</sup>Sunnybrook Research Institute; <sup>2</sup> McGill University; <sup>3</sup>Western University; <sup>4</sup>University of Calgary; <sup>5</sup>Southlake Regional Health Centre; <sup>6</sup>Mount Sinai Hospital; <sup>7</sup>William Osler Health Centre; <sup>8</sup>ICES; <sup>9</sup>Women's College Hospital; <sup>10</sup> Institute of Health Policy, Management & Evaluation, University of Toronto

## BACKGROUND

- Most rheumatology workforces are increasingly female.
- Subtle but important differences have been described in the way that male & female physicians work & how they care for their patients.
  - Females have been cited to practice more preventative medicine, spend longer time with patients & thus see fewer patients than males.
  - Females may work less hours (due to larger family caregiver roles), take time off to raise children, & retire earlier compared to their male counterparts.
- However, Canadian evidence supporting these assertions (that female rheumatologists have reduced clinical activity) is lacking.
  - Yet, this information is crucial for workforce planning.

## OBJECTIVES

- To compare differences in clinical activity & income between male & female rheumatologists & to evaluate the effects of physician gender on clinical activity (practice size & volume), accounting for rheumatologists' age, & calendar year effects.

## METHODS

### STUDY DESIGN & SETTING:

- We conducted a population-based study analyzing provincial billing data from 2000 to 2015 in Ontario, Canada, where all 13 million residents are covered by a publicly funded healthcare system.

### DATA SOURCES:

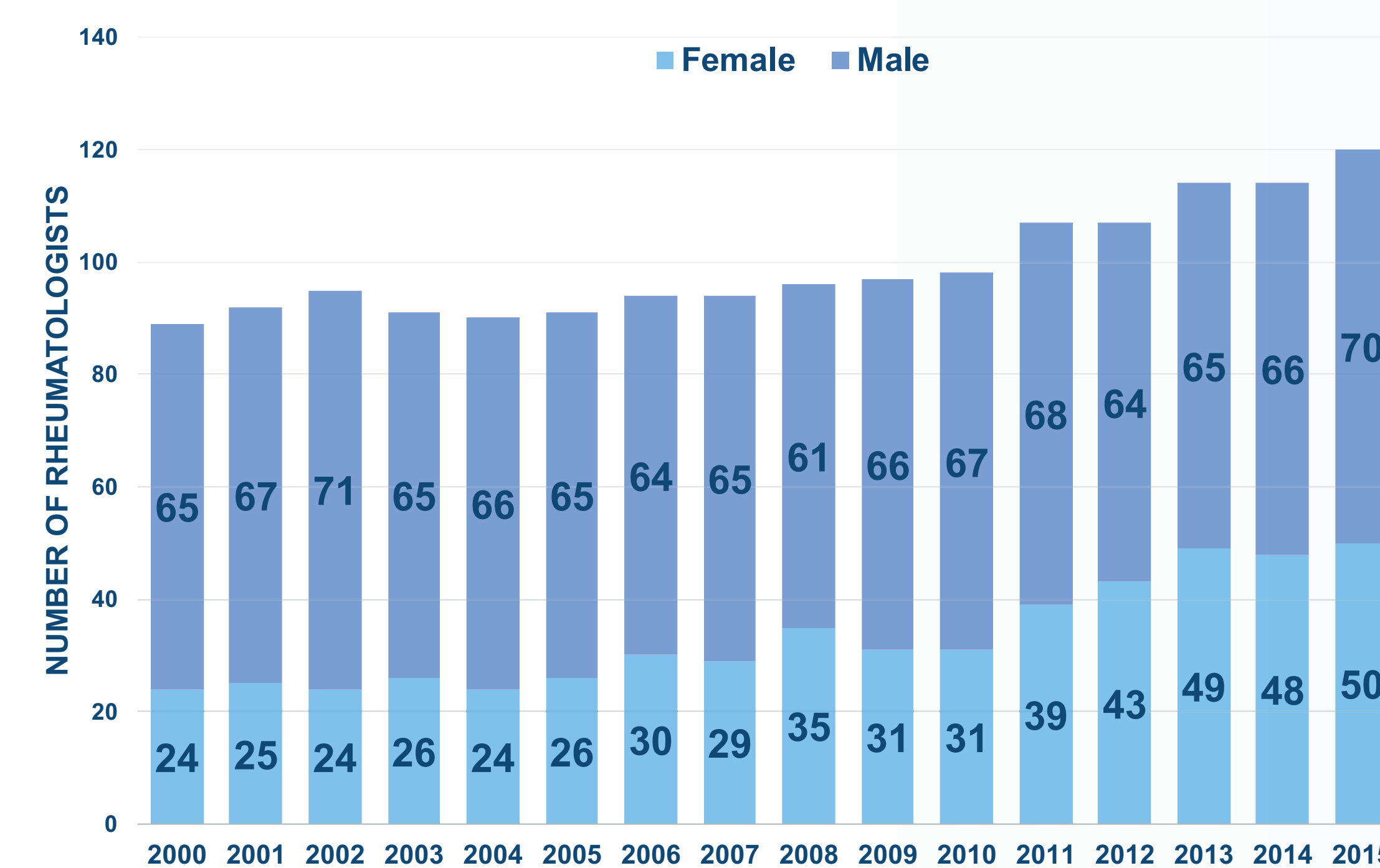
- Adult rheumatologists were identified using a validated physician registry → ICES Physician Database (IPDB).
  - Rheumatologists with a clinical practice volume of <1.0 full time equivalent (FTE) were excluded (e.g. academic researchers, administrators).
  - Paediatric rheumatologists were excluded.
- Patients encounters with rheumatologists were identified from the Ontario Health Insurance Plan (OHIP) Claims Database.

### ANALYSIS:

- We assessed practice sizes (number of unique patients), patient volumes (number of patient assessments), & income (derived from fee-for-service and alternative payments) in terms of annual median & interquartile ranges (IQR) & stratified by rheumatologists' gender.
- Physicians genders were compared using the Mann Whitney test and median differences & 95% confidence intervals (CIs) are reported.
- Two separate multivariate linear regressions assessed the effects of physician sex, age, & year on practice size, & volume.

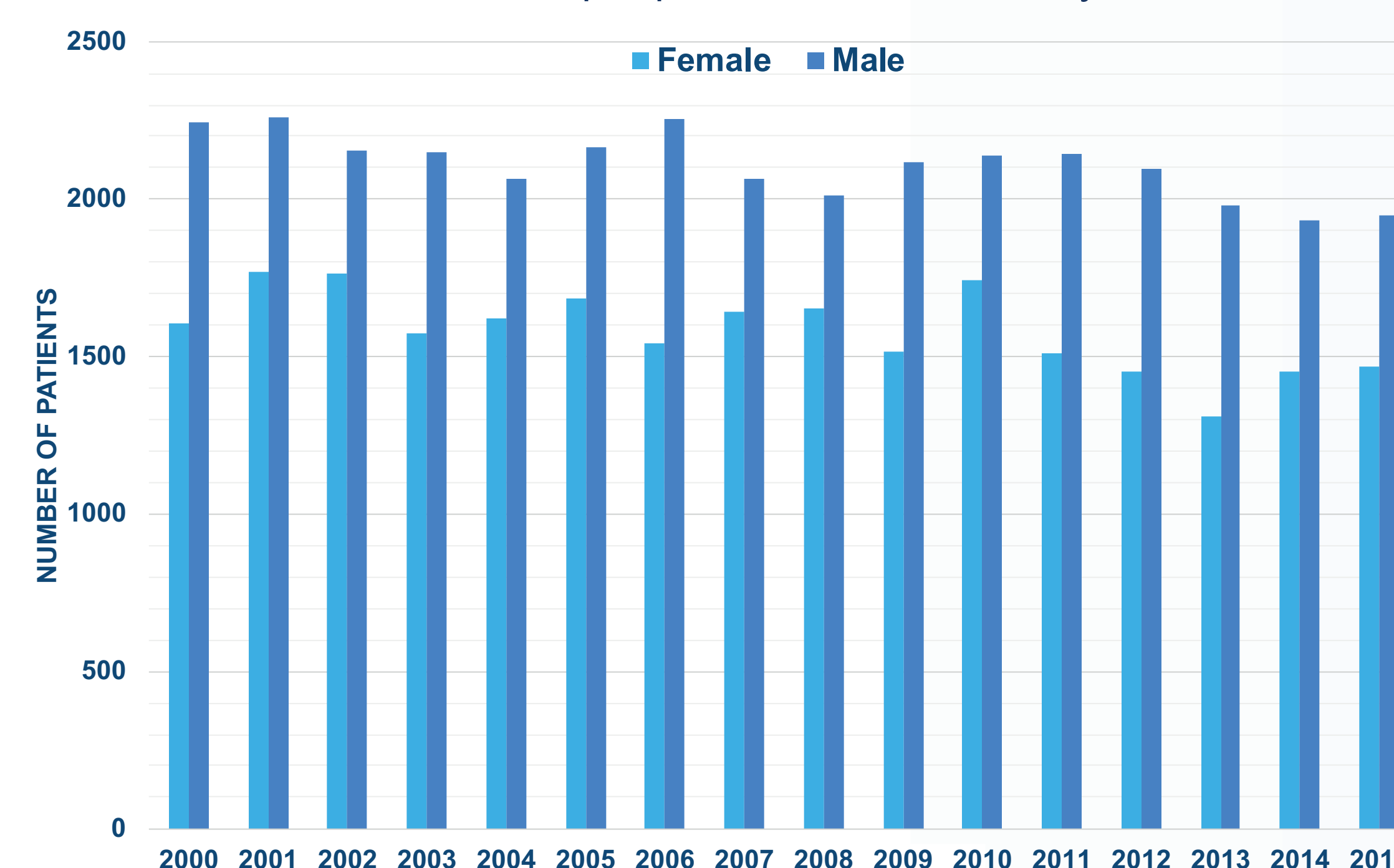
## RESULTS

### ① Annual Number of Clinical FTEs



### ③ Annual PRACTICE SIZES

Median number of unique patients seen annually



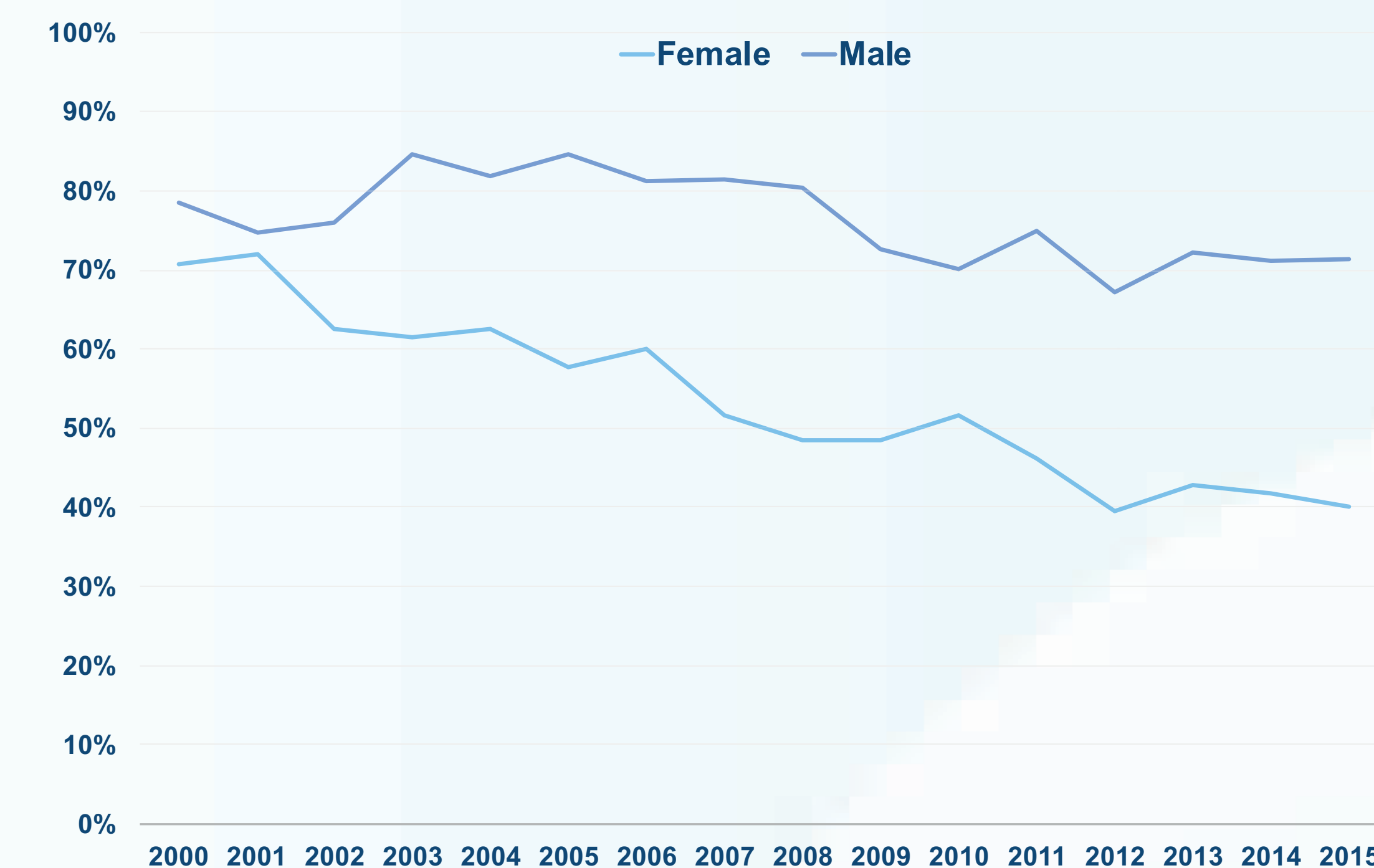
### ⑤ Percentage of rheumatologists by PRACTICE SIZE

# of Patients seen annually	2000		2007		2015	
	Female	Male	Female	Male	Female	Male
<1500	46%	22%	41%	23%	52%	30%
1500-1999	29%	17%	31%	22%	24%	23%
>2000	25%	62%	28%	55%	24%	47%

### ⑥ Percentage of rheumatologists by PRACTICE VOLUMES

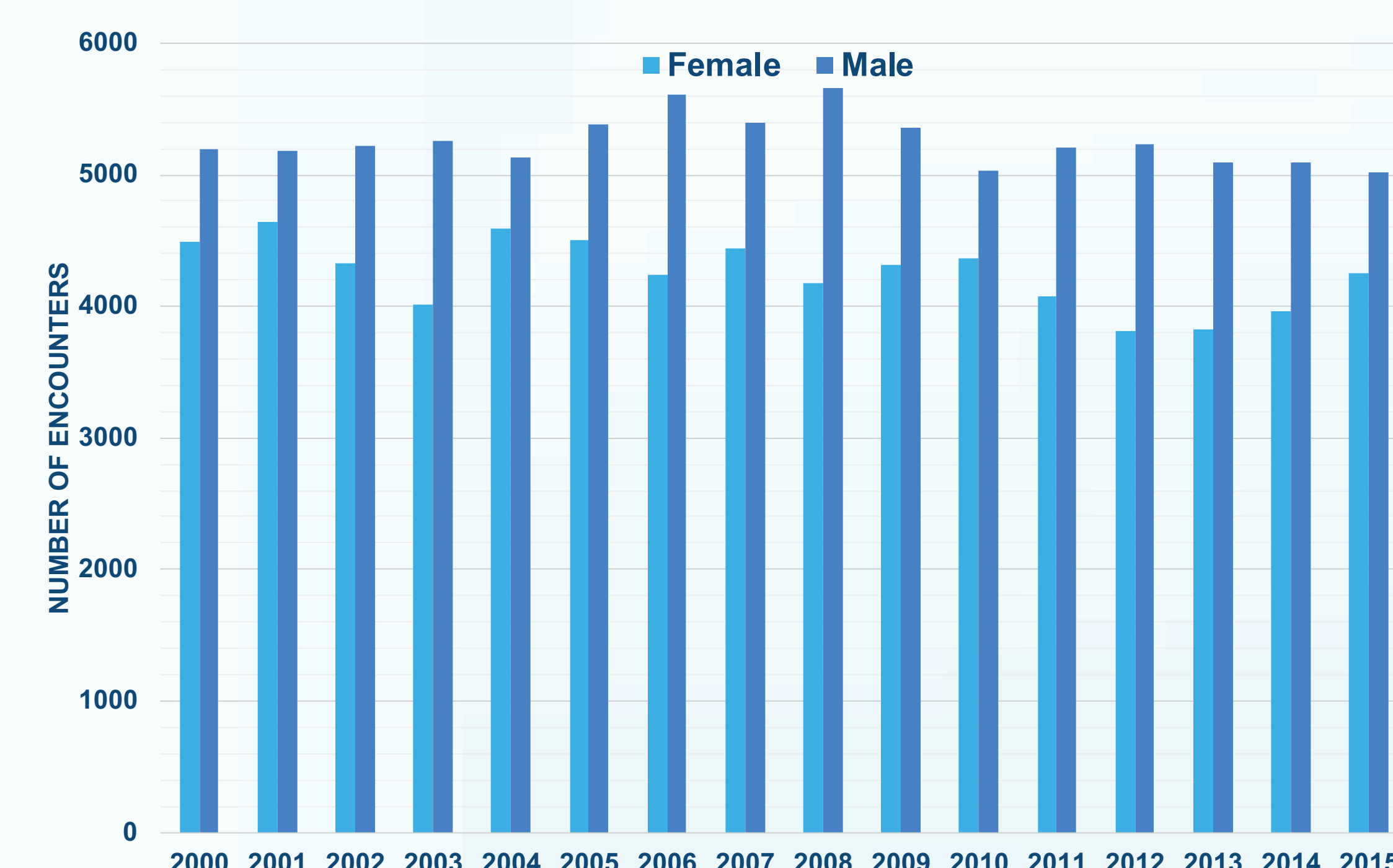
# of Patient encounters	2000		2007		2015	
	Female	Male	Female	Male	Female	Male
<3500	29%	17%	24%	17%	32%	21%
3500-4999	38%	31%	41%	23%	46%	29%
>5000	33%	52%	34%	60%	22%	50%

### ② Percentage of Rheumatologists with at least 3 patient contacts on at least 209 days of the year

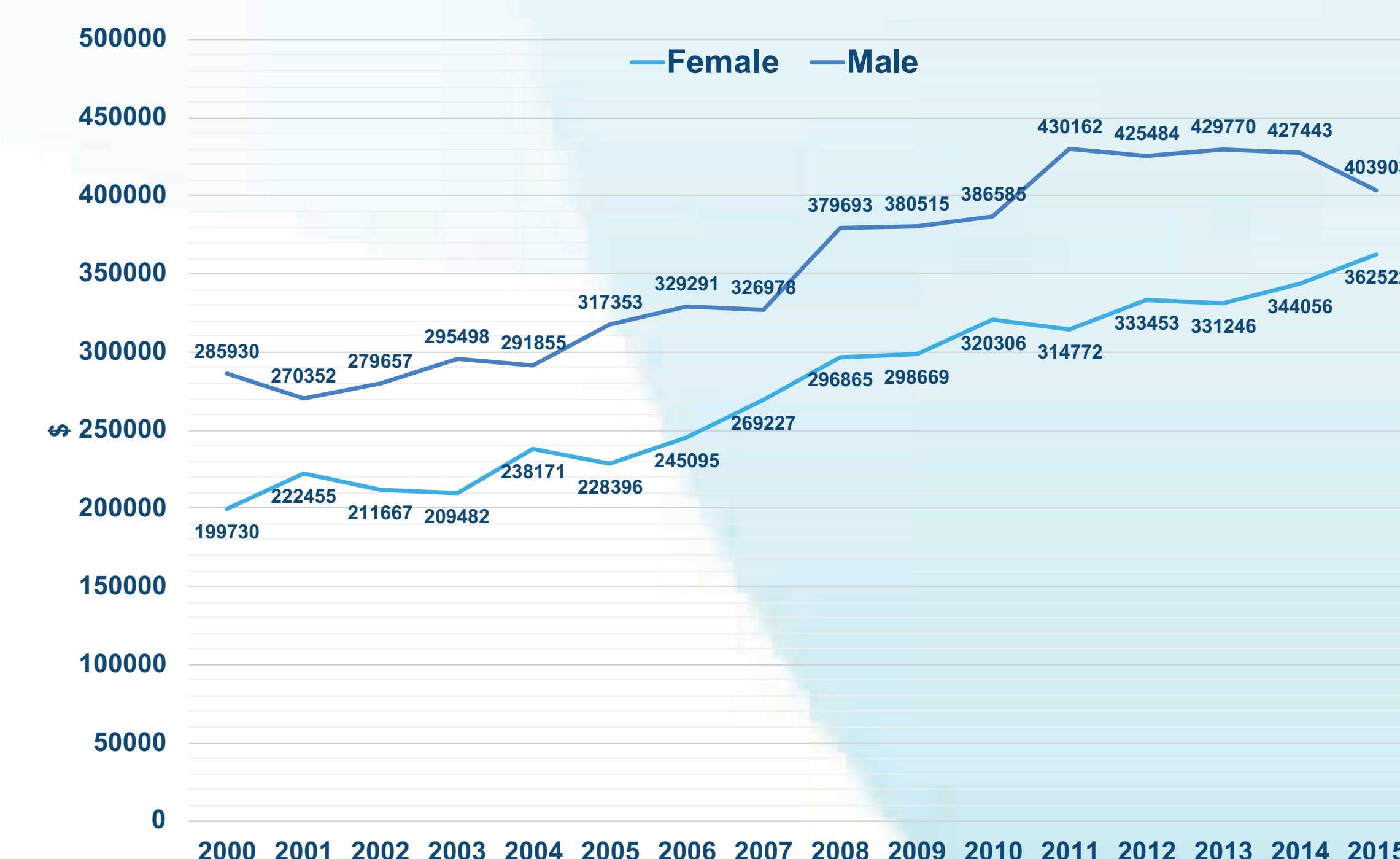


### ④ Annual PRACTICE VOLUMES

Median total number of patient assessments annually



### ⑦ Annual Median payments to individual rheumatologists



### ⑧ Multivariate Linear Regression Analysis: The effects of physician gender & age on PRACTICE SIZES & VOLUMES

	PRACTICE SIZES	PRACTICE VOLUMES
	Estimate (95% CI)	Estimate (95% CI)
Intercept	2339.8 (2021.7, 2657.9)	5484.3 (5028.6, 5940)
Gender (Female)	-605.8 (-1104.5, -107.1)	-1058.9 (-1773.3, -344.5)
Year (continuous)	22.1 (-8.1, 52.4)	88.6 (45.3, 132)
Sex*year interaction (female)	-57.8 (-110, -5.6)	-114.9 (-189.7, -40.2)
Age: <45	Ref	Ref
Age: 45-64	620.1 (369.1, 871.2)	385.9 (26.3, 745.5)
Age: 65 and older	-27.3 (-513.9, 459.3)	-1144.8 (-1841.8, -447.7)

## SUMMARY OF FINDINGS

- The number of rheumatologists with a FTE clinical practice increased from 89 to 120 from 2000 to 2015. More male FTEs were in practice each year compared to females. The % of female FTEs increased significantly over time, from 27% (n=24) in 2000 to 42% (n=50) in 2015 (15% increase, 95% CI 2, 27).
- The % of FTE rheumatologists with patient assessments on at least 209 days/year showed a downward trend over time for both genders. A higher % of males met this threshold each year.
- Practice sizes declined over time. In 2000, females saw a median (IQR) of 1,606 (1276-2228) patients vs. 2,242 (1606-2936) patients for males, for a median difference of 508 patients (95% CI 104-975). By 2015, females saw a median of 1,469 patients vs. 1,949 for males (median difference of 405, 95% CI 144, 682).
- Patient volumes were significantly higher for males. In 2015, females provided a median of 4,253 assessments compared to 5,014 for males (median difference 925, 95% CI 193, 1717).
- Approximately half of female rheumatologists have a practice size of <1500 patients whereas more than half of male rheumatologists have a practice size of >2000 patients.
- 50-60% of males have >5000 patient encounters annually whereas the majority of females have fewer patient encounters.
- Overall median (IQR) income (for both genders) increased over time from \$251,596 (\$199,367-\$333,164) in 2000 to \$388,733 (\$311,924-\$491,599) in 2015. Incomes were significantly higher for males (ranging from \$50K-100K/year).
- Our multivariate adjusted analyses estimated that males saw a mean of 606 (95% CI 107-1105) more patients annually than females, and provided 1,059 (95% CI 345-1773) more assessments. Over time, there was a small but statistically significant increase in mean patient assessments and middle-aged (45-64) rheumatologists had greater practice sizes & volumes than their younger/older counterparts. A significant interaction between calendar year & gender was seen.

## IMPLICATIONS

- On average, female rheumatologists provided fewer assessments & saw fewer patients annually relative to males, which resulted in lower earnings. This effect appears to be becoming more pronounced with time.
- Our findings provide novel perspectives for workforce planning with an ever-increasing number of females in the workforce.

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**Correspondence:** [jessica.widdifield@utoronto.ca](mailto:jessica.widdifield@utoronto.ca)