

Social and Economic Impact of COPD in the Brazilian Social Security System

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INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a chronic lung disease that causes airflow obstruction in the lungs, resulting in difficulty breathing and other symptoms. Manifestations include a chronic cough, mucus production (phlegm), shortness of breath (dyspnea), wheezing and fatigue. In severe cases, respiratory failure can occur.¹

These manifestations can lead to incapacity for work, physical disability and difficulties in daily activities. Permanent sequelae include reduced lung capacity, the need for continuous oxygen therapy and cardiovascular complications that can cause significant functional disabilities.¹

OBJECTIVE

To assess the economic burden of COPD according to types of benefits, on Brazilian social security system.

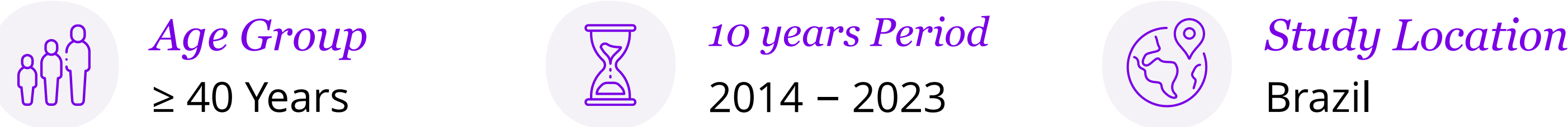
METHODS

Inclusion criteria

- We included benefits granted by the National Institute of Social Security (INSS) from Brazil, for beneficiaries with age between 40y and expected retirement by age (men 65y; women 60-62y), related to 16 ICD codes for COPD, chronic bronchitis, and pulmonary emphysema.

Measures

- Economic burden was measured by amount, duration, total productivity loss and estimated expenditure on benefits.
- Duration of long-term benefits (retirement and social assistance) was estimated considering the average life expectancy, according to sex and age, adjusting Brazilian life tables for the excess mortality attributable to COPD² and limiting to the observed period and expected retirement age.
- Expenditures were adjusted for inflation until December 2023.



RESULTS

Figure 1: Flowchart of data selection for analysis.

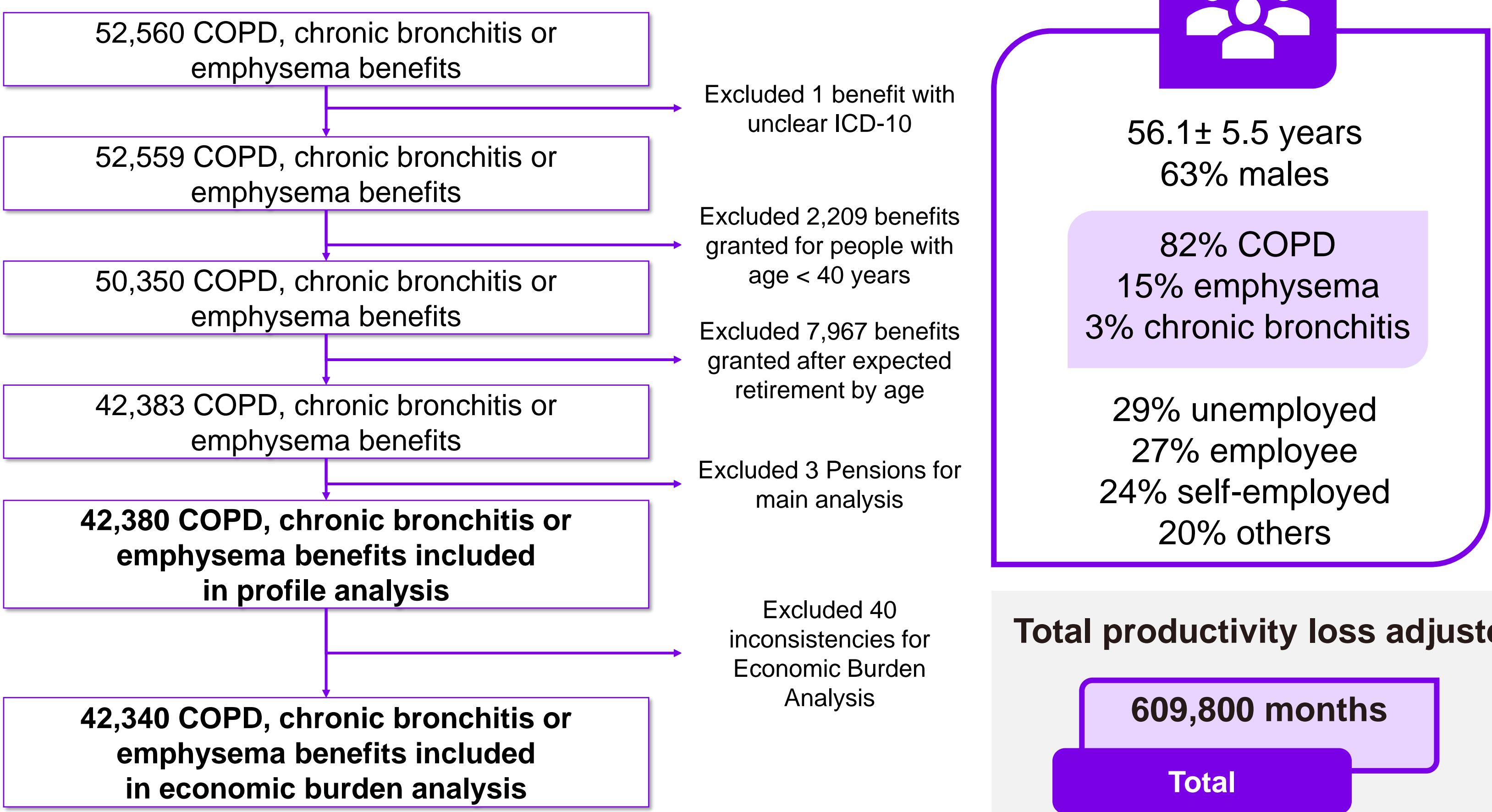


Table 1. Economic burden by beneficiary related with COPD, chronic bronchitis or emphysema on Brazilian social security system, according to type of benefit.

	Aid / benefit	Early retirements	Social assistance
Benefit Duration Adj., months*	4 (3 to 4)	36 (15 to 54)	20 (9 to 47)
Benefit Wages by beneficiary corrected for inflation Adj., BRL*	R\$ 5,360 (4,118 to 7,160)	R\$ 58,044 (23,824 to 97,029)	R\$ 26,543 (11,826 to 62,132)

* Results in median to interquartile range.

Total productivity loss adjusted

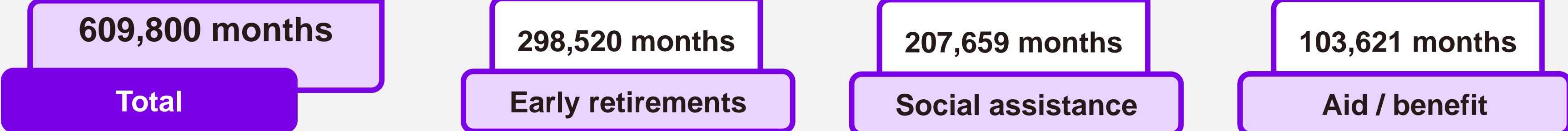


Figure 2. Geographic distribution of average annual benefits granted per 100,000 population.

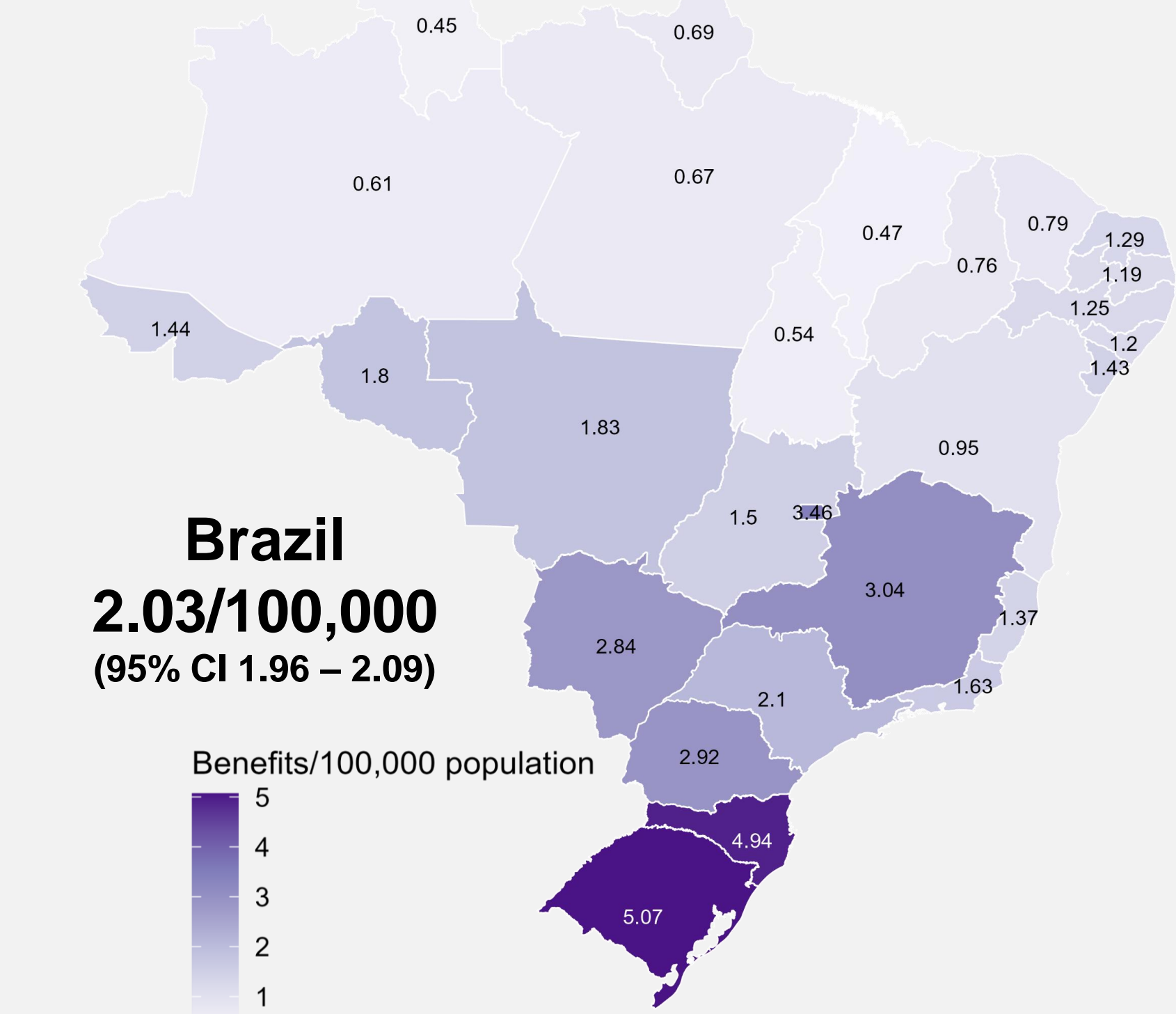


Figure 3. Percentual of benefits granted per type

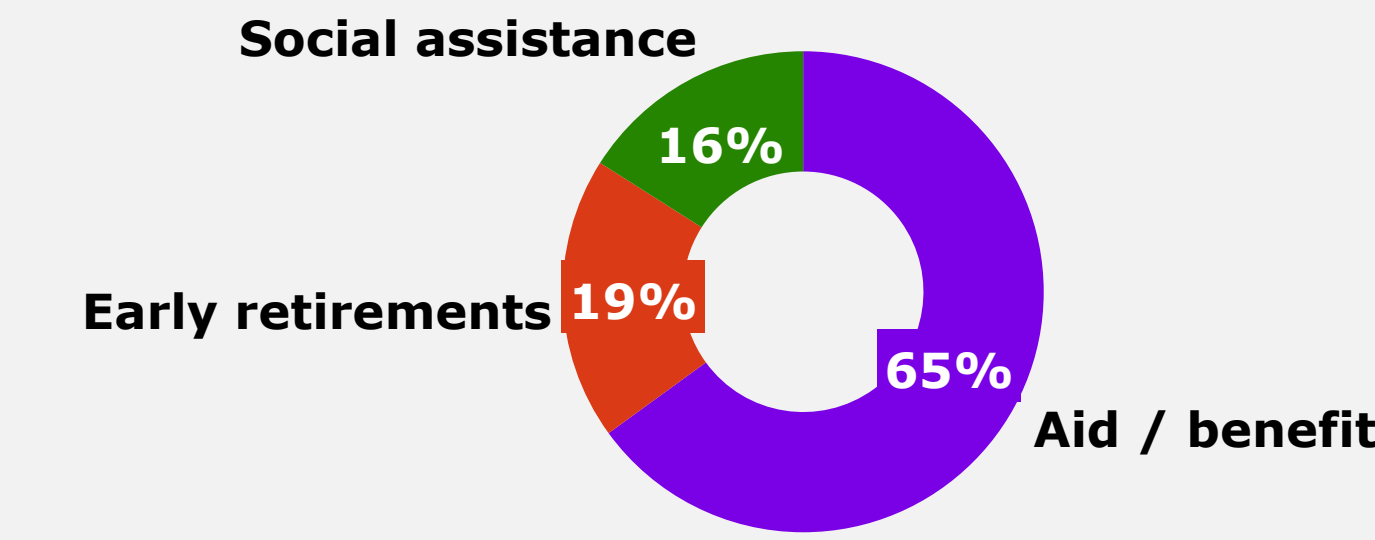
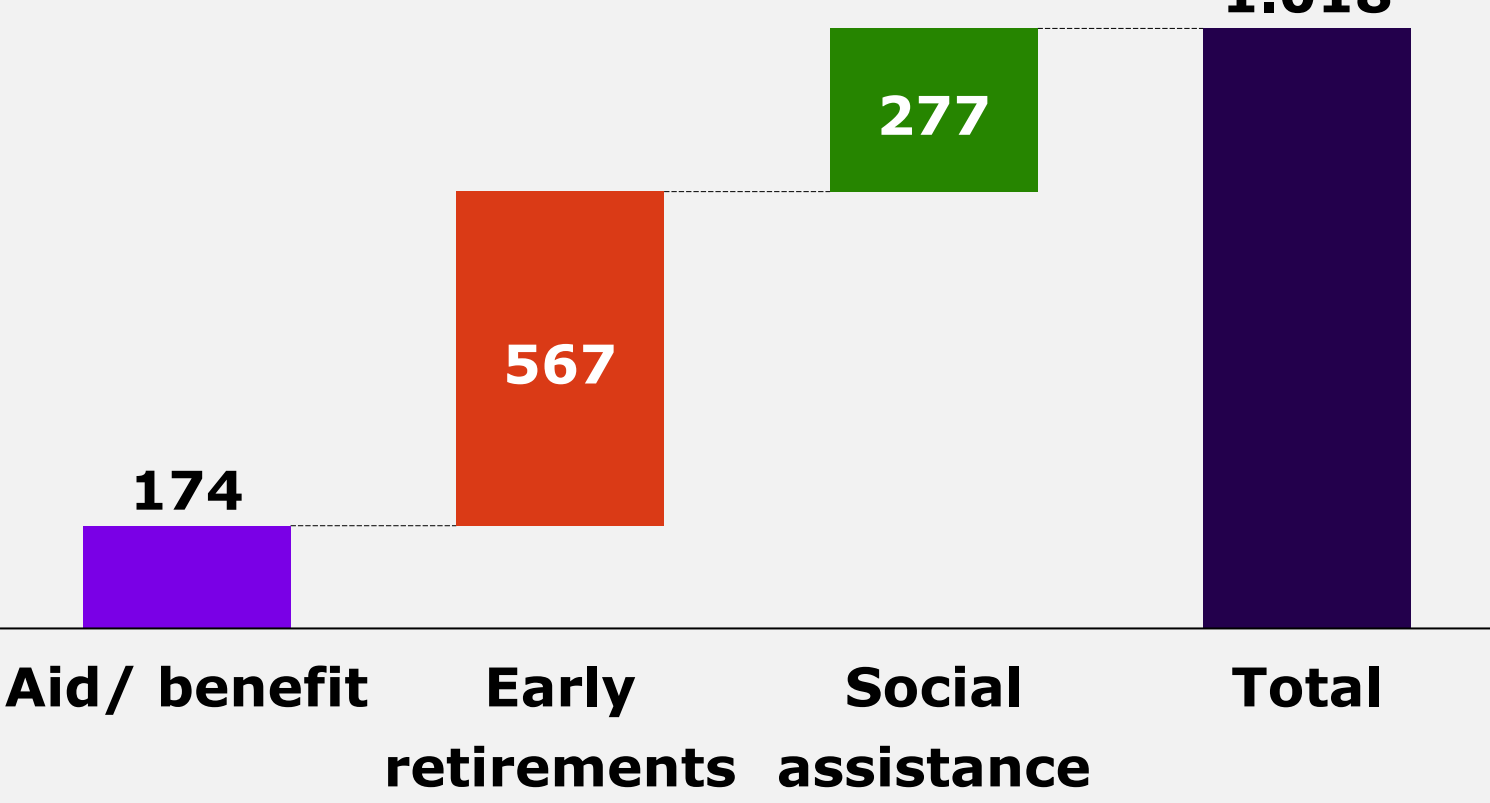


Figure 4. Total Benefit Wages corrected for inflation Adj.* (Mi BRL)



DISCUSSION

- Although early retirement accounts for less than 20% of the benefits provided, it represents over 55% of the costs attributed to COPD in Brazil over the past 10 years.
- Total productivity loss adjusted added an estimated burden of approximately 51 years of work to the Brazilian system, with early retirement alone accounting for 26 of those years.
- The distribution of benefits across the Brazilian regions was uneven.
- The negative impact of early retirements related to COPD in Brazil places a significant burden on the social security system and undermines economic productivity.

CONCLUSIONS



- In the last 10 years, Brazilian social security system received a burden greater than 1 billion BRL only related to COPD, mainly driven by early retirement. These results showed the economic impact of COPD-related benefits, straining public resources. Benefits were also unevenly distributed across the country, which spans a continental dimension in case of Brazil.

CONFLICTS OF INTEREST

SFW, FM, MHSN, LBJF, are sanofi employees and may hold stock and/or Options in the company. KB, MM, RAR, recieved professional service fees from Sanofi for conducting this research. PAMF: no conflicts of interest.

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FOOTNOTES

- This pattern of expense distribution was generally sustained when analyzed by year of payment.

STUDY FUNDING

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- GOLD: Global Initiative for Chronic Obstructive Lung Disease. Global strategy for prevention, diagnosis and management of COPD: 2024 Report 2024. Available from: <https://goldcopd.org/2024-gold-report/>.
- International Journal of COPD 2018;13: 3549–3561.