Temporal Trends of Percutaneous Transluminal Coronary Angioplasty Procedure and Mortality Rates in the Brazilian Public Healthcare: a Real-World Data Analysis from 2014 to 2022

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Background

Percutaneous transluminal coronary angioplasty (PTCA) is among the technologies available to **restore blood flow** in coronary arteries, being the **preferred choice for myocardial reperfusion** in acute syndromes.

Objectives

Our aim is to describe **procedure** and **in-hospital mortality rates** trends of PTCA performed in Brazilian Public Healthcare System (SUS).

Methods

Hospital admission **records from 2014 to 2022** reporting **PTCA procedures** were obtained from the **SUS' Hospital Information System**.

Annual procedure and in-hospital mortality rates per 100,000 population were **age and sex standardized** by the Revised European Standard Population[1].

Annual percent change (APC) with 95% confidence interval (CI) was estimated by **linear regression of the logarithm-transformed standardized rates**[2].

All analysis were performed using R.

Results

779,405 PTCA registered in SUS.

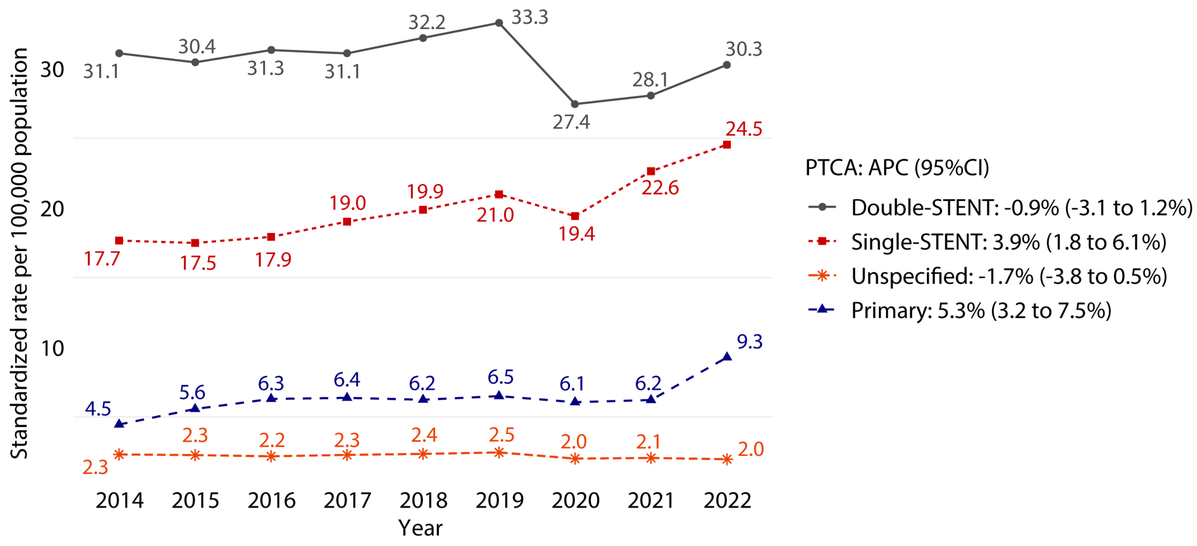
Average annual rate 57.6/100,00

- single-stent 19.9/100,000
- double-stent: 30.6/100,000
- primary: 6.3/100,000
- unspecified: 2.2/100,000

Procedure rates **slightly increased** in the period (**APC 1.4%, 95%CI 0.8 to 2.7%**), derived from (**Figure 1**):

- **primary** (APC 5.3%, 95%CI 3.2 to 7.5%)
- **single-stent** (APC 3.9%, 95%CI 1.8 to 6.1%)

Figure 1. PTCA standardized rates by year



21,729 in-hospital deaths registered

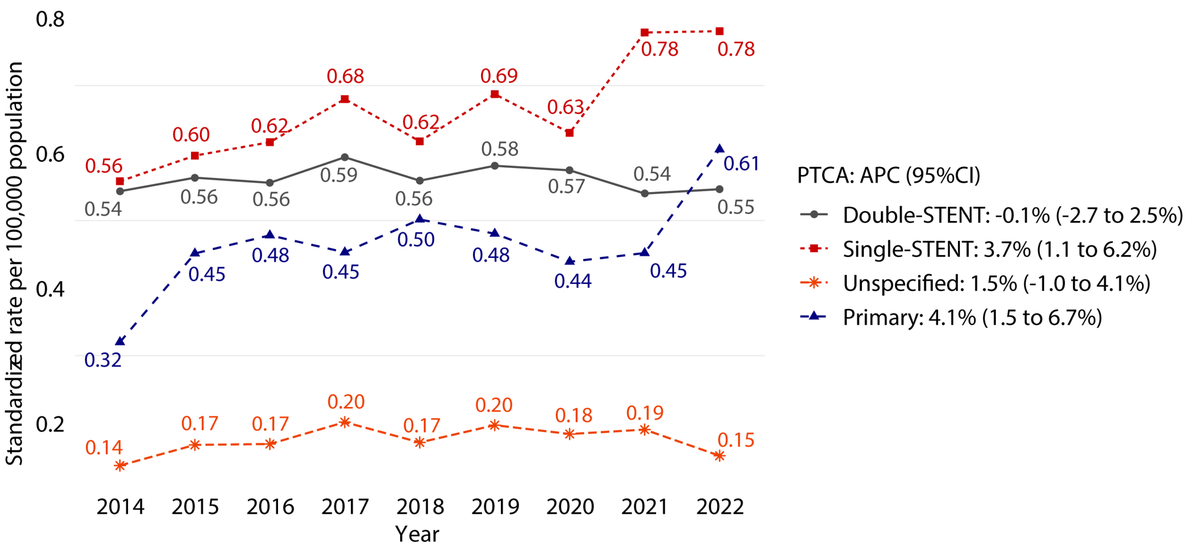
Average annual in-hospital mortality rate was 1.9/100,000

- single-stent 0.66/100,000
- double-stent: 0.56/100,000
- primary: 0.46/100,000
- unspecified: 0.7/100,000

Significant annual increase in the period **(APC 2.5%, 95%CI 1.2 to 3.7%)**, derived from (**Figure 2**):

- **primary** (APC 4.1%, 95%CI 1.5 to 6.7%)
- **single-stent** (APC 3.7%, 95%CI 1.1 to 6.2%).

Figure 2. PTCA in-hospital deaths by year



Conclusions

- There was an **increase of the annual PTCA procedures** performed in SUS from 2014 to 2022. **Single-stent implants** and **primary PTCA** showed **higher annual rate rise.**
- **PTCA** annual in-hospital **mortality rate** increase **surpassed** the one for **PTCA procedure rate.**
- Even though, for **single-stent** and **primary** PTCA **the increase** in in-hospital mortality **was lower** than the **procedure rate.**
- This analysis may indicate the **need for closer surveillance of the PTCA outcomes in the SUS.**

References

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3. Clegg LX, Hankey BF, Tiwari R, Feuer EJ, Edwards BK. Estimating average annual per cent change in trend analysis. Stat Med. 2009;28(29):3670-82.