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# RECENT TRENDS OF INCIDENCE AND MORTALITY OF BREAST CANCER IN URUGUAY

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## ABSTRACT

Purpose: This study aimed to analyze the trends in breast cancer mortality and incidence among adult women in Uruguay using Joinpoint and age-period-cohort analysis.

Methods: The study analyzed mortality data from 1990-2020 and incidence data from 2002-2019. Joinpoint analysis was conducted for four age groups: all ages, 20-44 years, 45-69 years, and 70 years and older. Age-period-cohort analysis was conducted using 5-year age groups and 5-year periods.

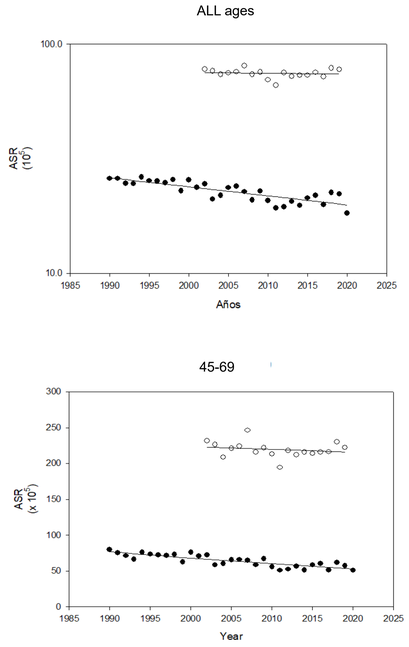
Results: The study registered 34,113 new breast cancer cases from 2002-2019 and 19,582 deaths from 1990-2020. Mortality rates showed a decrease among all ages included (EAPC=0.91%[-1.14;-0.67]). However, mortality rates among women younger than 45 years stopped declining after a trend that existed from 1990 (EAPC=-2.07%[-3.00;-1.13] for period 1990-2010 and EAPC=2.27% [-0.58;5.21] for period 2010-2020). Mortality rates continued to decline among women aged 45-69 years (EAPC -1.23 [-1.53;-0.92]), while among women aged 70 years and older, mortality rates remained stable (EAPC:-0.17[-0.48;0.14]). Cohort parameters confirmed a uniform decline in mortality among women born after 1920, with a possible increase among those born after 1985. Attributing all drift to the period effect, show a uniform decline in mortality rates with a possible increase in the last period. Incidence rates showed a stable trend among all ages included (EAPC= -0.08%[-0.51;0.35]), with an increase among women younger than 45 years (EAPC=0.90 [0.29;1.51]),with net increase of 1.34% annually for women aged 40-44 years, and a decrease for 70 years and older (EAPC=-0.75[-1.35;-1.15]). Cohort parameters confirmed the incidence rate ratio remained stable across all cohorts.

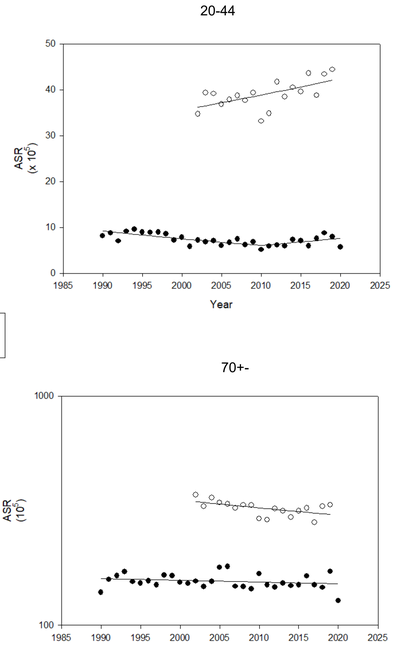
Conclusion: The study found that breast cancer mortality rates have stopped declining among women younger than 45 years. Incidence rates remain stable, with a small rise among women younger than 45 years.

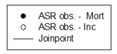
## METHODS

Cancer incidence data, corresponding to the period 2002-2019, and mortality data, corresponding to the period 1990-2020 were obtained from the National Cancer Registry of Uruguay. Person-years were calculated through linear interpolation from the information of the censuses of 1996, 2004 and 2011 ( National Institute of Statistics). Joinpoint analysis was conducted: in incidence for the period 2002-2019, and in mortality for the period 1990-2020, for four age groups (all ages, 20-44 years, 45-69 years, and 70 years and older). Age-period-cohort analysis was conducted using 5-year age groups (age 25+ years) and 5-year periods: 2005-2009, 2010- 2014, 2015-2019 for incidence, and 1991-1995, 1996-2000, 2001-2005, 2006-2010, 2011-2015 and 2016-2020 for mortality. The analysis were performed in R (Epi package) and using age-period-cohort Web Tool from the National Cancer Institute.


## RESULTS







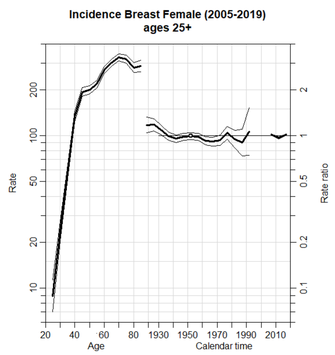


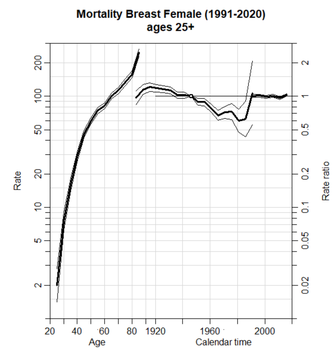

**INCIDENCE**

| Age | Period | EAPC | IC 95% | p-value |
|---|---|---|---|---|
| 20-44 | 2002-2019 | 0,90* | (0,29 ; 1.51) | 0,007 |
| 45-69 | 2002-2019 | -0,18 | (-0,65 ; 0.29) | 0,430 |
| 70+ | 2002-2019 | -0,75* | (-1,35;-0.15) | 0,018 |
| ALL | 2002-2019 | -0,08 | (-0,51;0.35) | 0,690 |

**MORTALITY**

| Age | Period | EAPC | IC 95% | p-value |
|---|---|---|---|---|
| 20-44 | 1990-2010 | -2,07* | (-3,00 ; -1.13) | 0.0001 |
| | 2010-2020 | 2,27 | (-0,58 ; 5.21) | 0.115 |
| 45-69 | 1990-2020 | -1,23* | (-1,53 ; -0.92) | <0.0001 |
| 70+ | 1990-2020 | -0,17 | (-0,48 ; 0.14) | 0.267 |
| ALL | 1990-2020 | -0,91* | (-1,14 ; - 0.67) | <0.0001 |




## CONCLUSIONS

Breast cancer mortality rates have stopped declining and incidence rates have a small rise among women younger than 45 years.

## REFERENCES

-Instituto Nacional de Estadística – Uruguay:https://www.gub.uy/instituto-nacional-estadistica/
-R Core Team, A Language and Environment for Statistical Computing, R Foundationfor Statistical Computing, Vienna, Austria, 2016,https://www.R-project.org/
-Carstensen B. 2007. Age–period–cohort models for the Lexis diagram. Statistics in Medicine 26: 3018–3045
-NCI. A Web Tool for Age-Period-Cohort Analysis of Cancer Incidence and Mortality Rates (National Cancer Institute, 2014). https://analysistools.cancer.gov/apc/