

Incidence, Trends and Patterns of Female Breast, Cervical, Colorectal and Prostate Cancers, in Antigua and Barbuda, 2017-2021: A Retrospective Study

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Female breast and prostate cancers were dominant in terms of case numbers, incidence, and age-standardized incidence rate (ASIR) per 100,000 population in the period 2017-2021. Variations in cancer-specific incidence and age-standardized incidence rates across parishes & years of diagnosis were noted. All four cancer-specific cases and age-standardized incidence rates are expected to increase during the period 2022 to 2030. Marginal increases in incidence and age-standardized incidences are predicted for female breast, cervical and colorectal cancers; sharp increases projected for prostate cancer.

BACKGROUND

- Cancer burden represents a significant public health challenge globally¹
- Cancer is the fourth leading cause of death \geq age 70 years¹
- Our four cancers accounted 32% of cancer incidence and 23% of deaths worldwide (2020)²
- In less developed countries, prostate and colon cancers are common in men, while colon, breast and cervical cancers are common in women¹
- Locally, cancer accounted for 21% of the estimated 82% of noncommunicable diseases deaths in 2020³
- There is a lack of data and limited studies on these four cancers in Antigua and Barbuda.
- Need to understand the changing extent and profile of these diseases at the national level⁴
- Aim to investigate incidence, trends and patterns of breast (female), cervical, colorectal, and prostate cancers in the population of Antigua and Barbuda from 2017 to 2021.



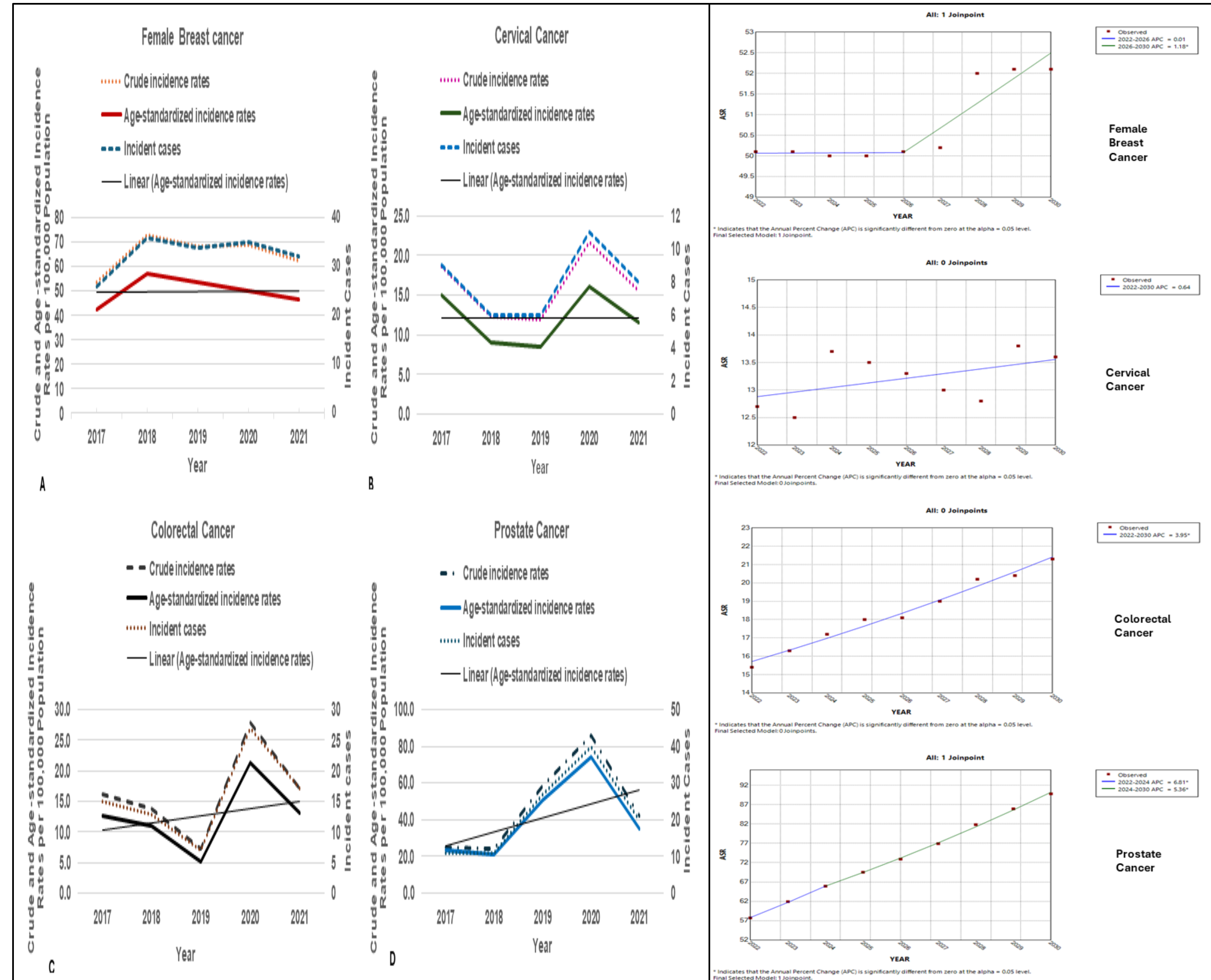
METHODS

- This is a retrospective observational study.
- Study population were histologically confirmed cases of men and women \geq 18 years with primary diagnosis of female breast, cervical, colorectal, & prostate (clinically) in men, from 2017 to 2021.
- Study sites were Sir Lester Bird Medical Centre, Medical Benefits Scheme, The Cancer Centre Eastern Caribbean, Ministry of Health. (Entities located in capital St. John's).
- Data was obtained by record abstraction/review of medical charts.
- Key outcomes were cancer-combined and cancer-specific age-standardized incidence rates defined by age-categories, parishes, year of diagnosis, and cancer subtype (periods 2017 to 2021 and 2022 to 2030).
- Data analysis: derivation of age-standardized incidence rates using direct standardization and Segi world standard population; Trend analysis/predictions using simple linear regression and Joinpoint regression modelling.

RESULTS

- A combined 391 cancer cases identified.
- Female breast n=163, 41.7%; prostate n=109, 27.9%; cervical n=40, 10%; colorectal n=70, 20%
- Mean age 61.5(\pm 12.9) years; Range 24-94 years;
- 58% of cases between 55-74 years.
- 2020: noted largest case count (n= 114, 29.2%) & for most cancers
- St. John's parish contributed 56% of cases.
- Mean age (female breast 58.7(13.5); cervical 51.8(15.0); colorectal 65.2(12.1); prostate (66.5(7.8).
- Age category (female breast: 53% at ages 55-74; cervical: 50% at ages 35-54; colorectal: 51% at ages 55-74; prostate: 82% at ages 55-74).
- Age-standardized incidence: female breast 49.9 (95%CI 42.2-57.5; cervical 12.0 (95%CI 8.3-15.7); colorectal 12.8 (95%CI 10.0-15.6); prostate 47.6 (95%CI 39.1-57.4).
- 2017-2021: no change in annual percentage change (APC) per cancer type
- 2022-2030: low to moderate increases in age-standardized rates for all cancers except prostate cancer.
- 2022-2030: significant differences in APC for all cancers except cervical cancer/combined (AAPC 3.4(95%CI 3.0-3.8); p< 0.001).

RESULTS CONTINUED



CONCLUSIONS

- Study provides valid evidence of the current incidence, trends and patterns of these cancers.
- Incidence of cancers are projected to increase (2022-2030)
- Findings maybe attributable to risk factors caused by demographic and economic changes
 - Westernization of lifestyles, increasing life expectancy.
 - Improved reporting of cancer diagnosis/other developments.
- Findings useful for policymakers, civil society, funders of healthcare (e.g., insurers)
- Are effectful for instituting policies/measures at the public health & clinical levels to arrest burdens:
 - Cancer registry (hospital and population based).
 - National cancer plan (e.g., guidelines, surveillance, communication, vulnerable in society).
 - Health infrastructure/capacity (e.g., screening, detection, diagnosis, treatment, technology)
 - Survivorship
 - End-of-life care
 - Research (e.g., risk factor assessment)
 - Financing
 - Cytotoxic waste management
 - Physical activity, nutrition, healthy weight

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Funding Source

This work was funded by the University of KwaZulu-Natal, College of Health Science Scholarship. Data collection was self-funded

Conflicts of Interest:

The authors declare no conflict of interest.

Acknowledgements

This work was possible because of the support of the Ministry of Health, Antigua and Barbuda, the Sir Lester Bird Medical Centre, the Medical Benefits Scheme, and the Cancer Centre Eastern Caribbean. Special thanks to Dr. Albert Duncan, Medical Director, Dr. Adrian Rhudd, Consultant Urologist, Dr. Hanybal Yazigi, Consultant Medical Oncologist, Dr. Michael Ozuomba, Chronic Diseases Registrar and Ms Christine Joseph.

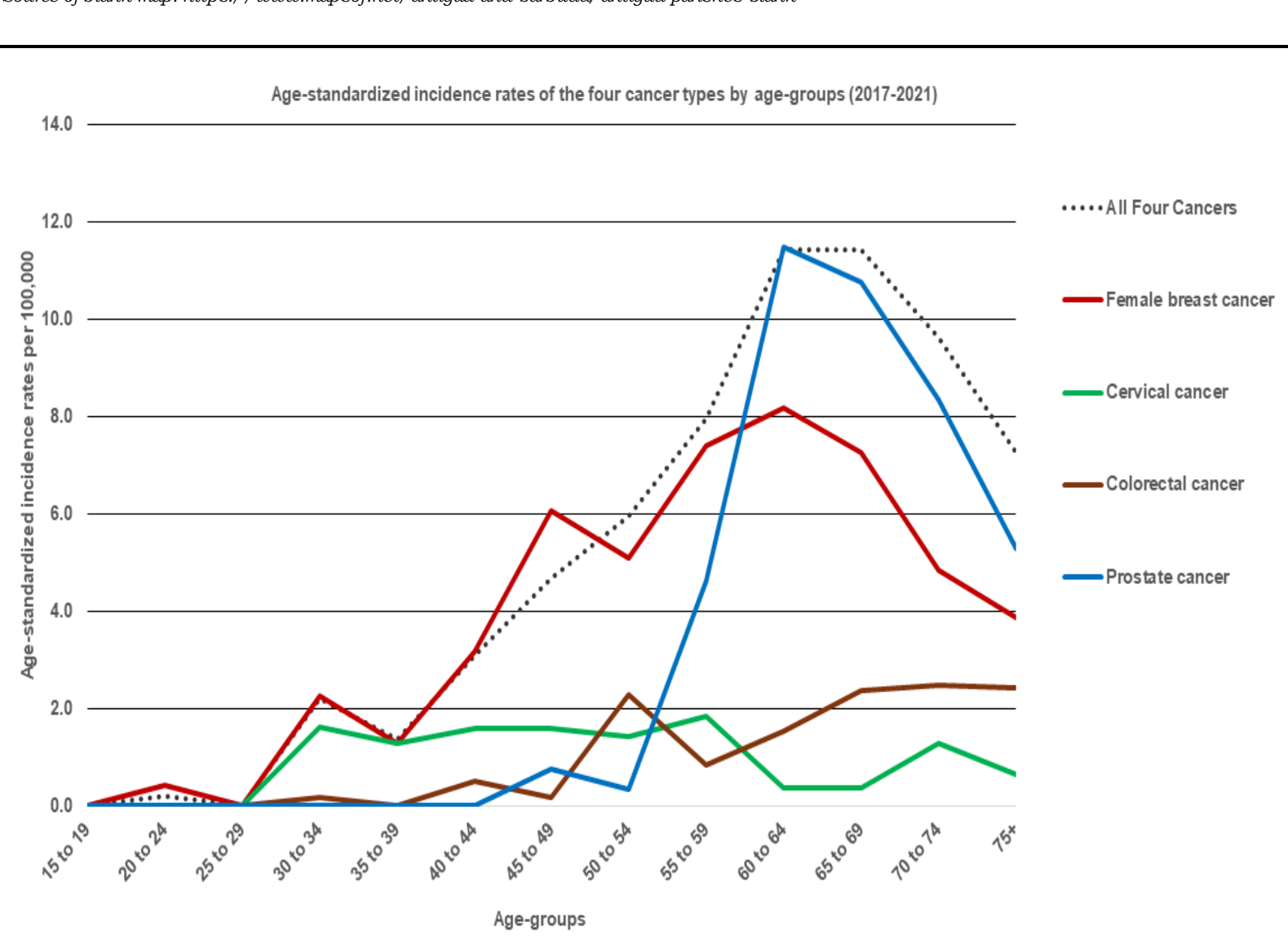
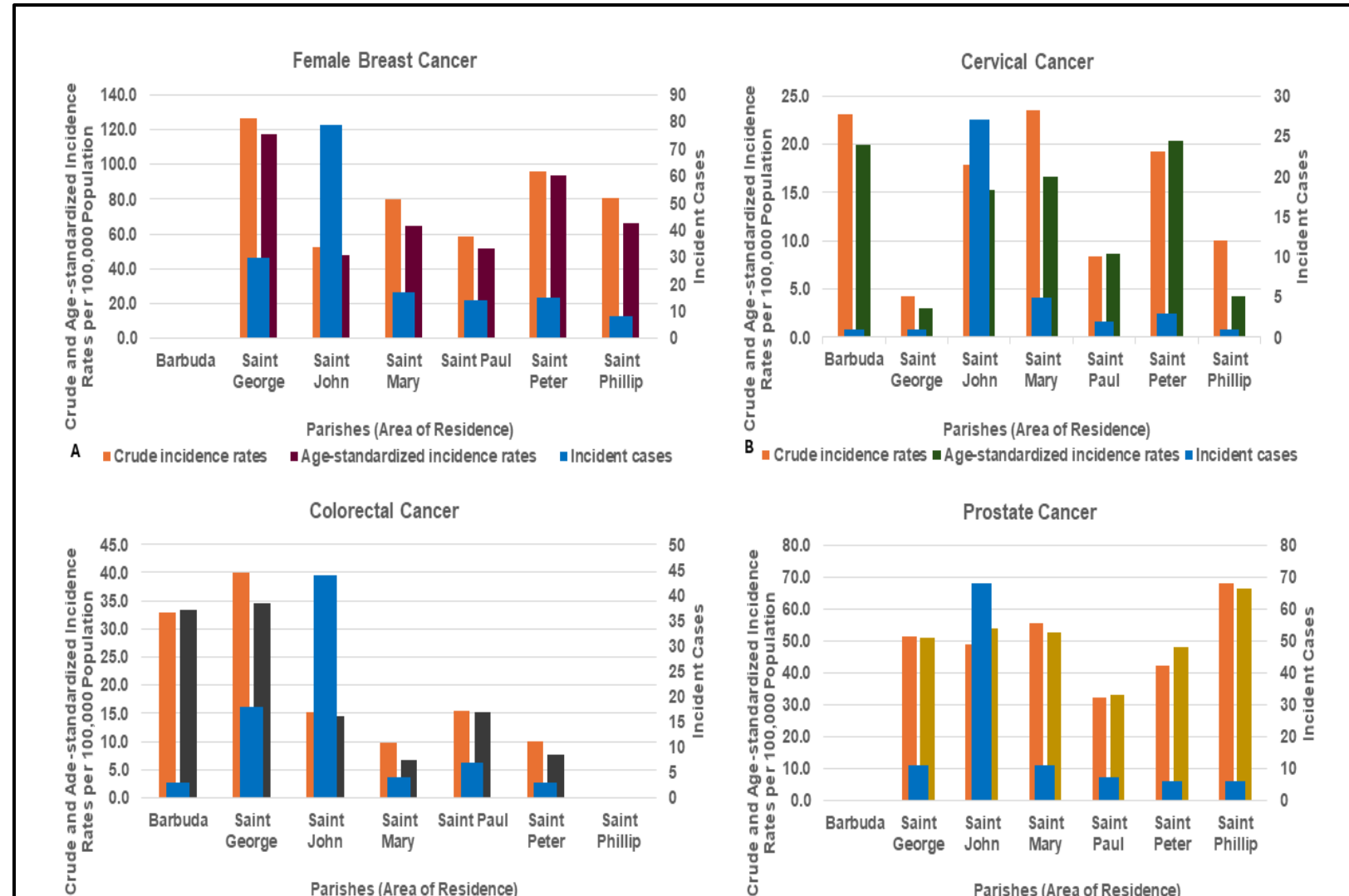
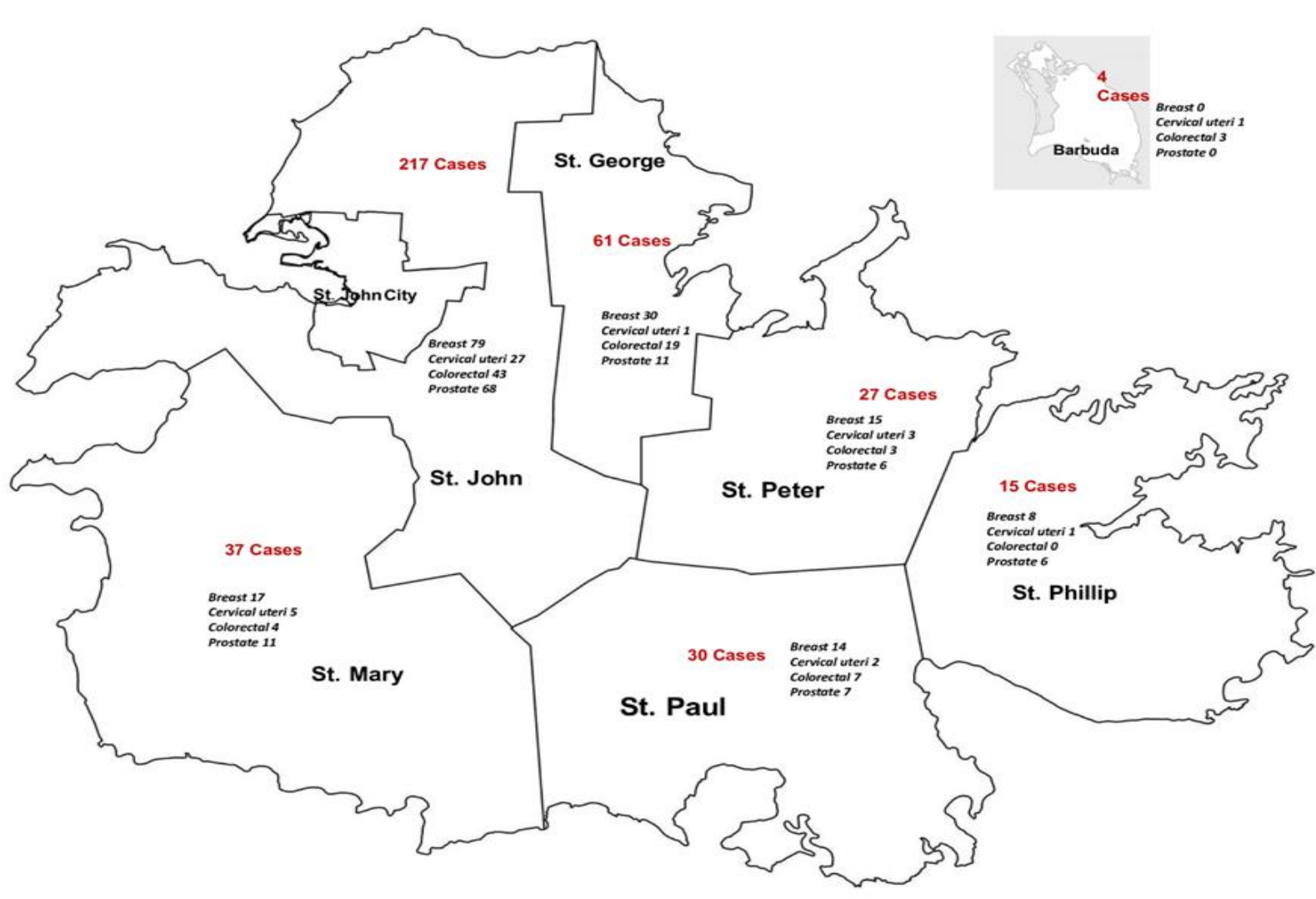


Table 1: Joinpoint analysis of the trends in cancer-specific incidence rates for the combined cancers, female breast, cervical, colorectal and prostate cancers in Antigua and Barbuda (2017-2021) & (2022-2030) projected

Cancer Type	Final Selected Joinpoint Model	Line Segment		Annual Percentage Change (APC)/95%CI	Average Annual Percentage Change (AAPC)/95% CI
		Start	End		
All four cancers (combined)	0	2017	2021	8.1 (-14.5-37.6)	8.1 (-14.5-37.6)
Female Breast	0	2017	2021	-0.2 (-13.0-14.4)	-0.2 (-13.0-14.4)
Cervical	0	2017	2021	0.1 (-27.2-37.6)	0.1 (-27.2-37.6)
Colorectal	0	2017	2021	10.3 (-32.6-80.4)	10.3 (-32.6-80.4)
Prostate	0	2017	2021	21.7 (-32.6-119.8)	21.7 (-32.6-119.8)
All four cancers (combined)	1	2022	2028	3.6 (3.3-4.0)*	3.4* (3.0-3.8)
		2028	2030	2.7 (0.9-4.6)*	
Female Breast	1	2022	2026	0 (-1.2-1.3)	0.0 (-0.0-1.2)
		2026	2030	1.2 (0.2-4)*	
Cervical	0	2022	2030	0.6 (-0.4-1.7)	0.6 (-0.4-1.7)
Colorectal	0	2022	2030	3.9 (3.5-4.4)*	3.9* (3.5-4.4)
Prostate	1	2022	2024	6.8 (4.3-9.4)*	6.8* (4.3-9.4)
		2024	2030	5.4 (5.0-5.7)*	5.7* (5.2-6.2)

* Indicates that the APC/AAPC is significantly different from zero at the alpha level (0.05)
Model Selection: Weighted Bayesian Information Criterion (BIC)parametric method