

Improving Brazilian Cancer estimates – A pilot study

Fernanda Cristina da Silva de Lima¹, Marise Souto Rebelo¹, Arthur Orlando Correa Schilithz¹, Marceli de Oliveira Santos¹,
Adalberto Luiz Miranda Filho², Rafael Garcia Cunha³

¹Instituto Nacional de Câncer/ Coordenação de Prevenção e Vigilância/ Divisão de Vigilância e Análise de Situação – DVAS.

² International Agency for Research on Cancer/IARC - ³Serviço Social do Comércio

Background

Since 1995, the Brazilian National Cancer Institute – INCA, estimates and disseminate information on cancer incidence by geographical regions, states and capital cities. It is essential to assist managers and planners to guide strategies and policies to prevent and control cancer. From 2000, cancer estimates were based on method proposed BLACK et al. Brazilian PBCR are improving their databases and enlarging their series - of the 32, 27 registries have at least 8 years of consolidated information. This scenario is favorable to evaluate the possibility of implement the same procedures used to build global estimates (Globocan).

Methods

Belo Horizonte's PBCR (2000-2012) was chosen to test the estimates performance and the estimate incidence rates was based on DEPPRED – program developed by IARC/IACR, which uses simple time-linear prediction models with short prediction calculation incidence of cancer. It was projected cancer incidence to 2012 (observed data) and 2016 (INCA estimates) by sex and 18 age groups (0-4, ...85+) for colorectal (C18-21), prostate (C61), lung (C33-34), female breast (C50) and cervix uteri (C53) cancer.

Results

The prediction for colorectal cancer was similar to observed (2012) and estimated (2016) cancer cases. Females had a better fit. Cervix uteri had the better performance. Female breast cancer and prostate were similar to observed incidence but when compared to 2016 estimates, it exceeds the cancer cases by 30 to 50%.

Discussion / Conclusion

The prediction performance shows a great coherence to real data. Compared with 2016 INCA estimates, there were a distortion related to female breast cancer and prostate, already expected due to the overdiagnoses of screening procedures. The prediction model is feasible and should be implemented to predict Brazilian cancer estimates. The challenge is to deal with cancer screening-related and heterogenous databases available.

Table 1. Number of new cancer cases and age-adjusted incidence rates to world standard (ASW) observed and projected by gender in Belo Horizonte's PBCR, 2012.

Cancer site	Male		Female	
	Observed	Projected	Observed	Projected
Colorectal				
Cases	305	337	379	416
ASR (World)	24,88	27,13	21,95	22,99
crude rate	27,51	28,8	30,17	32,09
Prostate				
Cases	1407	1333		
ASR (World)	120,4	112,04		
crude rate	127,05	113,90		
Female breast				
Cases			1144	1457
ASR (World)			69,36	87,12
crude rate			91,15	112,38
Cervix uteri				
Cases			170	180
ASR (World)			10,3	10,81
crude rate			13,28	13,88

Table 2. Number of new cancer cases and age-adjusted incidence rates to world standard (ASW) observed and projected by gender in Belo Horizonte's PBCR, 2016.

Cancer site	Male		Female	
	Observed	Projected	Observed	Projected
Colorectal				
Cases	310	366	360	391
ASR (World)	-	26,53	-	19,88
crude rate	25,68	30,87	26,27	29,69
Prostate				
Cases	880	1478		
ASR (World)	-	112,14		
crude rate	73,76	124,65		
Female breast				
Cases			1030	1670
ASR (World)			-	93,85
crude rate			75,59	126,82
Cervix uteri				
Cases			170	152
ASR (World)			-	8,47
crude rate			12,48	11,54