

CHAPTER 1

Epidemiology of colon cancer

Incidence and epidemiology

Colorectal cancer (CRC) is the third most common cancer in men (10.2%) and the second in women (9.2%) Accounts for 10% of all tumors and the fourth cause of cancer-related death worldwide.^(1,2) Worldwide, colon cancer was estimated at 1.1 million new cases (6.1%) and 551,000 (5.8%) deaths.²⁻⁵

The highest incidence of colon cancer is found in Europe, Australia, New Zealand and East Asia, China, Japan, South Korea and the female population of Singapore.⁶

The mortality rate in the European Union is 15 to 20 per 100,000 men and 9 to 14 per 100,000 women and has decreased over time, especially in the female sex. The 5-year survival rate ranges from 28.5 to 57% in men and 30.9 to 60% in women, with an overall estimate of 46.8 and 48.4%, respectively.^{4,7}

The American Cancer Society estimated that approximately 105,000 Americans would be diagnosed with colon cancer and 53,200 would die from it by 2020. The risk of developing colon cancer is approximately 4%, with the highest risk occurring in people with a family history of CRC. In the United States, colon cancer is a leading cause of cancer-related death, being the third most common cause of cancer, with more than 100,000 Americans diagnosed annually.⁸

Age is considered a major non-modifiable risk factor for sporadic colon cancer. It occurs at an age greater than 65 years in 70% of patients and is rare in those under 40, although recent data from the West have reported an increase in incidence in the 40-44 age group.^{6,9}

According to a recent study of over 920,000 patients with colon adenocarcinoma, the average age was 68±13 years, 50.5% were female, 83% were white, and the majority (85.3%) lived in metropolitan areas.¹⁰

Analysis of a cohort in the United States showed a 5-year survival rate of 90% in localized cancer, 70% when there is regional involvement, and 14% in distant involvement.^{4,8}

Surgery remains the most important primary treatment for most patients with colon cancer, while chemotherapy is most frequently used as adjuvant treatment. However, neoadjuvant therapy for locally advanced tumors is currently a relevant new therapeutic perspective, as is immunotherapy for metastatic tumors.

Colon cancer in Argentina

The Instituto Nacional del Cancer (INC) published in 2022 the incidence of the various types of cancer in our country, according to data from Siver-Ca, an agency dependent on the Ministry of Health of the Nation. CCR was the second most common in both sexes.¹¹

In 2022, breast cancer had the highest incidence, accounting for 16.2% (21,631) of all new cases, and was the leading cancer in women. In second place was CRC with 11.9% (15,863 cases) and in third place was lung cancer. In men, the main sites of cancer were prostate (19.7%), CRC (13.3%) and lung (13.2%). In women, breast cancer predominated (31.6%) followed by CRC (10.6%) and cervical cancer (6.9%) (Table 1.1).

Colon cancer mortality

The distribution of deaths by sex and topographic location is shown in Table 2.2. As in the previous period and considering both sexes, lung cancer caused the highest number of deaths, with 8,438 (14.3%) cases, followed by colorectal cancer (12.2%) and breast cancer (9.9%).¹²

Lung cancer caused the highest mortality from malignant tumors in men (18.2/100,000), followed by CRC (13.1/100,000), prostate cancer (10.2/100,000), pancreatic cancer (6.9/100,000) and gastric cancer (5.8/100,000). In women, breast cancer was the most frequent (16.4/100,000), followed by lung cancer (8.8/100,000), CRC (8.5/100,000), cervical cancer (7.4/100,000) and pancreatic cancer (5.6/100,000).

CRC mortality over the period 2002-2022 is shown in Fig. 1.1. A different trend was observed according to sex. In men, a significant upward trend was recorded between 2002 and 2006, with an estimated annual percentage change (PECA) of 1.5%. Between 2006 and 2016, the rate of increase slowed to a value of 0.04% per year, and in the last 4 years a statistically significant decrease was observed, at a rate of -3.2% per year. In contrast, in women, a constant downward trend was observed at an average rate of -0.2% per year.

The age-adjusted mortality rate (TAE) for CRC in both sexes in Argentina is presented in Fig. 2.2, according to distribution quintiles. In men, the province of Neuquén was in the highest mortality quintile (125.5 deaths per 100,000 inhabitants). The province of San Juan was in the lowest quintile (73.3 deaths per 100,000). In women, La Pampa was in the highest quintile (95.2 deaths per 100,000), while the province of Catamarca was in the lowest quintile (62 deaths per 100,000 women).

Table 1.1. Absolute and relative distribution of incident cancer cases estimated by IARC for Argentina in 2022, by most frequent tumor location and sex. (N=133,420). With permission from the Instituto Nacional del Cancer.

Sites	Total, n	%	Men, n	%	Women, n	%
Breast	21,631	16.2	...	...	21,631	31.6
Colon-Rectum	15,863	11.9	8,633	13.3	7,230	10.6
Lung	13,016	9.8	8,587	13.2	4,429	6.5
Prostate	12,836	9.6	12,836	19.7	...	...
Pancreas	5,554	4.2	2,704	4.2	2,85	4.2
Kidney	4,908	3.7	3,409	5.2	1,499	2.2
Cervix	4,696	3.5	...	...	4,696	6.9
Stomach	4,460	3.3	2,870	4.4	1,590	2.3
Thyroid	4,229	3.2	645	1	3,584	5.2
Non-Hodgkin lymphoma	3,838	2.9	2,019	3.1	1,819	2.7
Bladder	3,713	2.8	2,827	4.3	886	1.3
Leukemia	2,998	2.2	1,691	2.6	1,307	1.9
Uterus	2,686	2	...	...	2,686	3.9
Liver and intrahepatic bile ducts	2,504	1.9	1,538	2.4	966	1.4
Ovary	2,191	1.6	...	...	2,191	3.2
Esophagus	2,142	1.6	1,433	2.2	709	1
Testicle	2,054	1.5	2,054	3.2	...	...
Brain, central nervous system	2,012	1.5	1,059	1.6	953	1.4
Skin melanoma	1,603	1.2	954	1.5	649	0.9
Larynx	1,266	0.9	1,074	1.7	192	0.3
Lips, oral cavity	1,236	0.9	798	1.2	438	0.6
Multiple myeloma	1,059	0.8	576	0.9	483	0.7
Hodgkin lymphoma	873	0.7	555	0.9	318	0.5
Gallbladder	810	0.6	225	0.3	585	0.9
Penis	470	0.4	470	0.7	...	...
Oropharynx	436	0.3	323	0.5	113	0.2
Vulva	343	0.3	...	...	343	0.5
Salivary glands	309	0.2	194	0.3	115	0.2
Mesothelioma	248	0.2	136	0.2	112	0.2
Kaposi sarcoma	246	0.2	213	0.3	33	0
Nasopharynx	153	0.1	111	0.2	42	0.1
Vagina	106	0.1	...	...	106	0.2
Hypopharynx	86	0.1	73	0.1	13	0
Others	7,552	5.7	4,339	6.7	3,213	4.7
Unspecified	5,293	4	2,694	4.1	2,599	3.8
Total	133,420	100	65,040	100	68,380	100

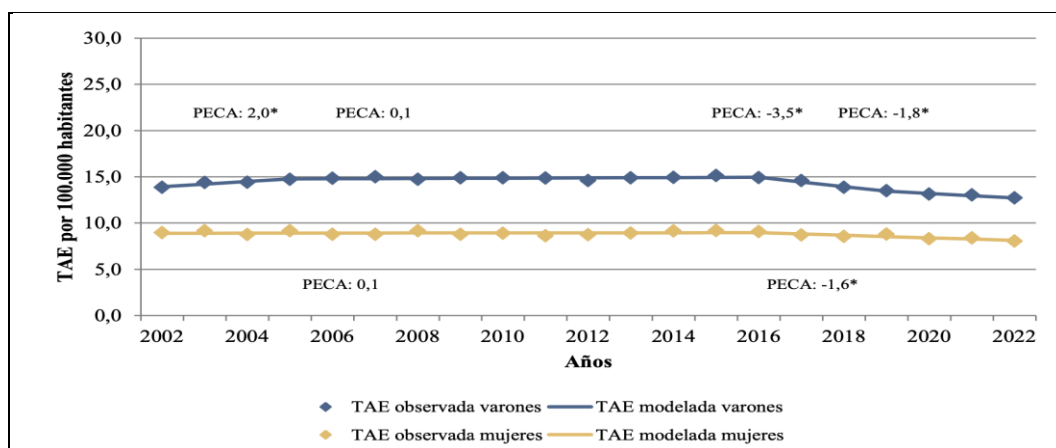
Source: Prepared by SIVER/INC based on Globocan 2022 data. Argentina, 2024.
IARC: International Agency for Research on Cancer.

Table 2.2 Distribution of cancer deaths by topographic site according to sex. Argentina, 2022. With permission from the Instituto Nacional del Cancer.

Sites	Men		Women		Total	
	n	%	n	%	n	%
Lung	5.190	17.5	3.248	11.1	8.438	14.3
Colon-Rectum	3.916	13.2	3.301	11.3	7.217	12.2
Breast	81	0.3	5.750	19.6	5.831	9.9
Pancreas	2.094	7.1	2.272	7.8	4.366	7.4
Prostate	3.443	11.6	0	0	3.443	5.8
Stomach	1.692	5.7	997	3.4	2.689	4.6
Uterus-neck		0	2.222	7.6	2.222	3.8
Kidney and other urinary	1.494	5	651	2.2	2.145	3.6
Liver	1.111	3.7	706	2.4	1.817	3.1
Esophagus	1.026	3.5	503	1.7	1.529	2.6
Brain and other CNS	784	2.6	628	2.1	1.412	2.4
Gallbladder and extrahepatic bile ducts	573	1.9	697	2.4	1.270	2.2
Bladder	920	3.1	344	1.2	1.264	2.1
Ovary		0	1.179	4	1.179	2
Non-Hodgkin lymphoma	631	2.1	463	1.6	1.094	1.9
Uterus-body		0	842	2.9	842	1.4
Myeloma	329	1.1	299	1	628	1.1
Larynx	504	1.7	90	0.3	594	1
Soft tissues	268	0.9	297	1	565	1
Tumors with frequency < 1%*	2.322	7.8	1.679	5.7	4.001	6.8
Poorly defined and metastasis	2.376	8	2.371	8.1	4.747	8.1
Total	29.667	100	29.264	100	58.931	100

*Includes: lips and oral cavity, skin: melanoma and non-melanoma, bone, other thoracic organs, thyroid, testicle, mesothelioma, pharynx, penis, other genitals, small intestine, anus, vulva, parotid glands, salivary glands, other endocrine glands, vagina, nasal cavity, paranasal sinuses and others, eye, Kaposi sarcoma and other malignant tumors.

Source: Prepared by SIVER-Ca based on mortality records from the DEIS, Ministry of Health of the Nation. Instituto Nacional del Cancer (INC), Argentina 2024.



Source: Prepared by SIVER-Ca based on mortality records from the DEIS, Ministry of Health of the Nation. Instituto Nacional del Cancer (INC), Argentina 2024.

*Statistically significant (p<0.005).

Figure 1.1 Trend and estimated percentage of annual change (PECA) in colorectal cancer mortality in men (blue line) and women (orange line). Age-adjusted rates (TAE) per 100,000 inhabitants. Argentina, 2002-2022. With permission from the Instituto Nacional del Cancer.

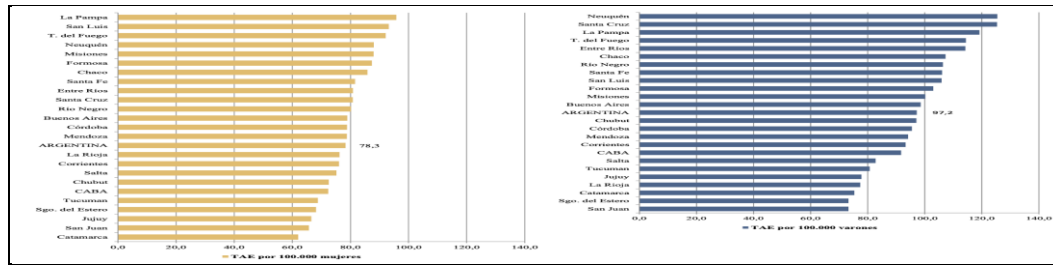
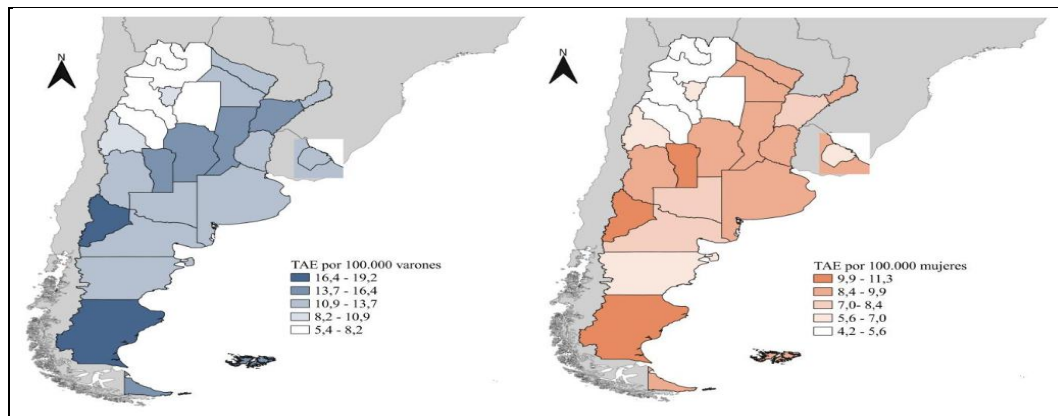


Figure 2.2. Cancer mortality in women (orange bar chart) and men (blue bar chart). All sites. Age-adjusted rates (TAE) per 100,000 inhabitants grouped into quintiles. Argentina and its jurisdictions, 2022. With authorization from the Instituto Nacional del Cancer.

In most jurisdictions of the country, male mortality due to this tumor location was higher than female mortality, with the exception of Río Negro, where the difference by sex increased compared to what was observed in 2019. Excess male mortality ranged between 0.8/100,000 inhabitants in

Salta and La Pampa and 14.6/100,000 in Santa Cruz, while the average difference at the country level between male and female mortality was 4.8/100,000. In Salta, men and women had similar mortality rates (5.8/100,000 men and 5.7/100,000 women) (Fig.3.3).



Source: Prepared by SIVER-Ca based on mortality records from the DEIS, Ministry of Health of the Nation. Instituto Nacional del Cancer (INC), Argentina 2024.

Figure 3.3. Colorectal cancer mortality by jurisdiction. Age-adjusted rates (TAE) per 100,000 inhabitants. Argentina, 2022. (blue: men, orange: women). With permission from the Instituto Nacional del Cancer.

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