

cious support of the Center for Gender Specific Medicine of the Italian National Institute of Health and with the collaboration of a national technical and scientific panel of regional experts in gender medicine and the gender medicine representatives of the network of Scientific Institutes for Research, Hospitalization and Health Care (IRCCS), which the IFO was called to coordinate. This document aims to provide a coordinated and sustainable policy to spread gender medicine through dissemination, training and healthcare practices that take into account the differences arising from gender in research, prevention, diagnosis and care, in order to ensure the quality and appropriateness of services provided by the Italian National Health Service (NHS) in a uniform manner throughout the country. This document was followed by the Plan for the application and dissemination of gender medicine in Italy, formally approved on 13 June 2019 by the Italian Ministry of Health, who signed the implementing decree relating to Law 3/2018.

### **Lung and colorectal cancer in relation to gender: a focus on data from the National Health Observatory in Italian Regions**

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The incidence, survival and mortality of tumors are the three key indicators that make it possible to assess, based on epidemiological studies, the severity of the disease and the effectiveness of the health system and to provide information about their behavior based on gender.

Worldwide, the incidence of cancer has changed greatly in recent decades in relation to demographic factors, in particular aging and the different exposure to risk factors such as smoking, unhealthy diet and hormonal status. These determinants have played a particular role in women, as a result of specific lifestyles and changes in the reproductive cycle.

Over the years, the fight against cancer has been fairly successful; in fact, the survival of many cancer patients, one of the most important indicators of the overall effectiveness of the health system, has significantly increased.

These results have been achieved through both increased secondary prevention and the development of new therapies. In addition, early diagnosis is crucial, as it significantly increases the chances of survival, reducing specific mortality, while therapies, both pharmacological and surgical, are decisive for the progress made in terms of prognosis.

This focus offers a key to interpreting the estimates of Italian data on incidence, survival and mortality in the 2005-2015 decade for two types of preventable tumors from a gender perspective: lung and colorectal cancer.

The analysis by macro-area of the country (North, Central, South and Islands) of the estimated annual percent change in the rate (standardized by age, European population, per 100,000 persons/year) of incidence and mortality and of the absolute percent difference of survival at 5 years after diagnosis has made it possible to identify four levels of progress (optimal, moderate, partial and inadequate).

The study has shown that there are differences in the progression of values in relation to gender.

Analyzing lung cancer over the 2005-2015 period (Table 1), it can be seen that, at national level, male gender was associated with optimal progress in terms of incidence (-2.7%), mortality (-3.2%) and survival (+5.7%), whereas female gender recorded an increase in incidence and mortality (+1.6% and +0.8%, respectively), although there was an increase in survival at 5 years from diagnosis (+5.6%). The incidence and mortality for men improved mainly in the North (-3.3% and -3.8%, respectively), while the increase in survival was greater in the South and Islands (+7.6%). As far as women are concerned, on the other hand, the worst data on incidence and mortality were found in Central Italy, with an increase of 2.5% and 1.7%, respectively, while the rather positive data on survival was recorded in the North (+8.6%).

The situation for colorectal cancer was different for each gender (Table 2). In this case, women showed a better progress, with a decrease at national level in both incidence (-0.4%) and mortality (-2.5%) and a significant increase in survival of 8.4%. Among men, mortality improved (-1.6%), incidence grew slightly (+0.5%), but above all, survival increased (+8.8%). By macro-area, the best progress among women was observed in the Central Regions with a decline in incidence (-0.5%) and mortality (-2.7%). As for survival, on

the other hand, the South recorded the greatest increase (+8.9%). Men too recorded the greatest increase in survival in the South and Islands (+9.6%), while the best values for incidence and mortality were observed in the North where the incidence did not increase and, therefore, the annual percent change was 0.0% and mortality decreased by 2.1%.

In the light of these findings, two considerations emerge that can guide health policies in this area.

The first concerns the need to promote policies aimed at further re-

ducing the prevalence of smoking, which still remains one of the main risk factors for developing lung cancer. In this regard, it is necessary to specifically launch prevention campaigns among the female population, which has recorded a worsening oncological trend in terms of incidence and mortality, probably due to smoking, which has grown among women in recent decades. These activities should be included in a set of prevention strategies and recommendations, which are still not yet spread evenly across the country, in

order to counter bad lifestyles and promote healthy lifestyles.

The second, on the other hand, concerns fair access to services and the adoption/application of therapeutic protocols consistent with guidelines.

All of these elements can help to ensure progress in oncological trends, intervening on territorial and gender differences.

**Table 1.** Estimated annual percent change in the rate (standardized by age, European population, per 100,000 persons/year) of incidence and mortality and absolute percent difference in relative survival at 5 years after diagnosis for lung cancer in the population aged 0-99 years per macro-area, years 2005-2015

Macro-areas	Males				Females			
	Incidence*	Mortality*	Relative survival at 5 years after diagnosis	Progress	Incidence*	Mortality*	Relative survival at 5 years after diagnosis	Progress
North	-3.3	-3.8	5.6	A	1.5	0.4	8.6	D
Central	-3.0	-3.1	2.5	A	2.5	1.7	6.1	D
South and Islands	-1.7	-2.3	7.6	A	1.3	1.2	1.0	D
Italy	-2.7	-3.2	5.7	A	1.6	0.8	5.6	D

\*95% statistical confidence.

A: optimal progress (declining/slightly declining incidence, declining mortality, rising survival); B: moderate progress (stable incidence, declining mortality, rising survival); C: partial progress (rising incidence, declining mortality, rising survival); D: inadequate progress (stable or rising incidence, rising or stable mortality, rising survival). Data source: 2017 Osservasalute Report, year 2018.

**Table 2.** Estimated annual percent change in the rate (standardized by age, European population, per 100,000 persons/year) of incidence and mortality and absolute percent difference in relative survival at 5 years after diagnosis for colorectal cancer in the population aged 0-99 years per macro-area, years 2005-2015

Macro-areas	Males				Females			
	Incidence*	Mortality*	Relative survival at 5 years after diagnosis	Progress	Incidence*	Mortality*	Relative survival at 5 years after diagnosis	Progress
North	0.0	-2.1	8.4	B	-0.4	-2.6	8.1	B
Central	0.2	-2.0	7.8	B	-0.5	-2.7	7.9	A
South and Islands	1.7	-0.4	9.6	D	-0.1	-2.2	8.9	B
Italy	0.5	-1.6	8.8	C	-0.4	-2.5	8.4	B

\*95% statistical confidence.

A: optimal progress (declining/slightly declining incidence, declining mortality, rising survival); B: moderate progress (stable incidence, declining mortality, rising survival); C: partial progress (rising incidence, declining mortality, rising survival); D: inadequate progress: (stable or rising incidence, rising or stable mortality, rising survival). Data source: 2017 Osservasalute Report, year 2018.