CONSEJERÍA DE SALUD

Andalusian Public Health System

THE ANDALUSIAN COMPREHENSIVE CANCER PLAN 2002-2006

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The Andalusian Comprehensive Cancer Plan
Sistema sanitario público de Andalucía

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I. THE ANDALUSIAN COMPREHENSIVE CANCER PLAN

Cancer is a major health problem in our Autonomous Community and is the second cause of death in both males and females. The incidence, mortality, potential years of life lost and resource consumption alongside the suffering endured by patients and families call for a commitment to be made by the Health Administration, healthcare professionals, patients and caregivers.

This Plan is based on *updated analyses* of the mortality, incidence and survival of Cancer in Andalusia, of the situation of Cancer care and the resources available and of the expectations of patients and main caregivers, and on the *conclusions* of different Work Groups on the Management of Processes related to Cancer

The Andalusian Comprehensive Cancer Plan establishes an action programme that involves organisational and functional changes, new proposals for the training of professionals and a specific funding base. The objectives of the Plan are as follows:

- Increase the general public's knowledge of and information about Cancer.
- Reduce the incidence and mortality of Cancer in Andalusia.
- Improve the survival and quality of life of patients with Cancer
- Match the offer of services to the needs of the population in an effective and efficient manner.
- Guarantee Cancer patients a healthcare based on a structuring of the care process that has care continuity as an comprehensive quality element.
- Build now to meet the future challenge of Cancer in Andalusia by investing in the training of professionals, in research and in preparations for the coming genetics revolution.

II. SITUATION OF CANCER IN ANDALUSIA

II.1. CANCER IN ANDALUSIA: EPIDEMIOLOGICAL ANALYSIS

The term cancer refers to a set of diseases with common biological characteristics but different age and gender distributions. They also differ in risk factors, detection measures, treatments and survival rates. Development of a global strategy to control the disease requires cancers to be grouped either by age, anatomical localization or histological type or by the similarity of risk factors or efficacy of prevention or prognostic measures.

Analyses of the distribution, incidence and mortality of Cancer and the differences found among and within countries have revealed the existence of high-risk populations defined by age, gender, profession or cultural determinants, allowing etiological hypotheses to be formulated. Analysis of trends over time also allows some risk factors to be recognised.

It is, therefore, important to determine the magnitude of Cancer expressed as the annual number of new cases or deaths, the distribution of each cancer type in the population and its repercussion in terms of years of potential life lost. This information contributes to a better planning of preventive, care and assessment activities and to the selection of priority research lines.

II.1.1. BASIC CANCER MORTALITY DATA IN ANDALUSIA, OTHER AUTONOMOUS COMMUNITIES, SPAIN AND EUROPE

In 1999, 14,450 individuals died of Cancer in Andalusia, representing 23% of all deaths. Out of these 14,450 deaths, 9,223 (63.8%) corresponded to males and 5,227 (36.2%) to females.

Cancer is the second cause of death in Andalusia after Circulatory Diseases, although it could really be considered the prime cause if the age at death were taken into account. In Andalusia, cancer caused 1,675 years of potential life lost per 100,000 inhabitants in males and 933 per 100,000 inhabitants in females, **higher figures than for any other cause of death**.

The main cause of death in the **European Union** is Circulatory Disease (42.4% of deaths) followed by Cancer (24.9%) and Ischemic Heart Disease (16.6%). The same behaviour can be observed in Andalusia, with the prime cause being Circulatory Disease (39.8% of deaths, followed by Cancer (23.6%) and Ischemic Heart Disease (12.2%).

In the **European Union**, the standardised mortality rate for Cancer in males is 268 per 100,000 inhabitants (1996 data), with Belgium having the highest rate (307.3) and Sweden the lowest (196). Spain has a similar rate (266) to the European mean, whereas the rate is marginally lower in **Andalusia** (264.7). The standardised mortality rate for Cancer in females is 149 per 100,000 in the European Union, with Denmark having the highest rate 207.1 and Greece the lowest (117.6). Spain is one of the countries with lowest rates (119.7), with **Andalusia** showing an even lower rate (118.4).

Hence, the mortality of cancer in Andalusia and Spain in males is very similar to that in the European Union (268 per 100,000), whereas in females the rate is among the lowest in the European Union.

In **Spain,** 91.701 deaths were caused by Cancer in 1998, 62.5% (57,284) in males and 37.5% (34,424) in females. The **Autonomous Communities** with most deaths from Cancer were: Catalonia with 15,223 (16.6% of Spanish total), Andalusia with 14,392 (15.7%), Community of Madrid with 10,561 (11.5%) and Community of Valencia with 8,867 (9.7%). These four communities account for 53.5% of the Spanish total.

MORTALITY FROM TUMOUR* IN SPANISH AUTONOMOUS COMMUNITIES, 1998
(Crude Rate and Standardized Rate per 100,000 Inhabitants)

	Females		Males	
	Nº Cases	Crude rates	Nº Cases	Crude rates
ANDALUSIA	5,190	141.2	9,202	258.7
ARAGON	1,268	211.0	2,058	353.4
ASTURIAS	1,186	210.9	2,121	408.3
BALEARICS	678	168.0	1,043	265.5
C. MADRID	4,153	156.9	6,408	262.1
C. VALENCIA	3,318	161.6	5,549	281.6
CANARIES	1,136	138.2	1,818	225.0
CANTABRIA	460	170.1	881	343.1
CASTILE-LA MANCHA	1,470	170.0	2,404	282.4
CASTILE-LEON	2,593	205.9	4,366	356.3
CATALONIA	5,762	182.9	9,461	315.6
CEUTA & MELILLA	94	143.4	129	193.5
EXTREMADURA	967	179.6	1,403	320.2
GALICIA	2,759	195.1	4,611	351.9
MURCIA	790	140.1	1,377	249.8
NAVARRE	499	186.1	792	301.5
BASQUE COUNTRY	1,931	180.2	3,220	313.6
RIOJA	168	201.6	436	333.6

* Including all tumours: benign, malignant, *in situ* and uncertain

Source: INE (MNP: deaths) and Population Census (2000)

Crude cancer mortality rates in Spain are 293.9 per 100.000 males and 169 per 100,000 females. There are major differences among the Autonomous Communities of Spain, which is at least in part due to the different age distribution of their populations. For planning purposes, therefore, it is important to present the crude cancer rates in order to calculate the number of cases requiring care, although the present report will also show standardized rates in order to compare the risk of dying of cancer among the Communities. Assuming that survival rates are similar among Communities, differences in mortality rates would be due to a higher risk of having the disease. The highest crude rates, for both males and females, are in Asturias and Aragon while Andalusia is one of the Communities with lowest rates. However, when standardized mortality rates are considered, Andalusia is one of the Communities with highest risk for males (4th place) and lowest risk for females (12th place).

II.1. 2. CANCER MORTALITY IN ANDALUSIA

Cancer is the second cause of death in Andalusia. In 1999, the numbers of deaths from tumour was 14,450, with a crude mortality rate of 205.5 per 100,000 inhabitants (258.3 in males and 141.7 in females); 28% of the mortality in males and 18% in females was caused by Cancer, which was responsible for 30% of years of potential life lost by males and 42% of those lost by females.

MORTALITY FROM TUMOURS. ANDALUSIA & PROVINCES. 1999*.

	Cases		CR		TSTD		YPLL	
	Females	Hombres	Females	Hombres	Females	Hombres	Females	Hombres
Almeria	310	648	121.4	254.6	99.0	277.1	764.5	1887.6
Cadiz	753	1454	134.5	264.2	123.3	322.7	1034.2	1945.0
Cordoba	523	970	133.4	258.4	96.6	240.1	959.0	1541.7
Granada	644	1034	156.8	263.2	116.7	250.5	828.7	1539.2
Huelva	375	625	163.2	278.0	121.7	276.2	902.4	1579.7
Jaen	450	819	137.9	256.6	97.9	226.1	830.0	1379.9
Malaga	866	1464	135.7	240.4	111.0	249.6	1020.4	1503.4
Sevilla	1306	2209	148.8	261.7	121.6	293.1	935.2	1827.1
Andalusia	5227	9223	141.7	258.3	112.6	268.8	932.8	1675.3

CR: Crude rate x 100,000 inhabitants; SR-DS: Standardized Rate x 100.000 inhabitants - Direct Standardization (European Population)

YPLL: years of potential life lost.

*: Provisional data, coded according to ICD-10

There is a heterogeneous distribution of Mortality from Tumours among Andalusian provinces, with the highest standardized rates for both genders in Cadiz, Sevilla and Huelva, with equally high rates for males in Almeria.

Although Cancer generally affects adults, it is also the second cause of death in children, representing 19% of the overall mortality in children under the age of 15 years.

According to current mortality rates, one out of every five males and one out of every 13 females under 75 years old in Andalusia will die from a Cancer.

The most frequent cancers (in order) are cancers of lung, colorectum, prostate, bladder, stomach and larynx in males, and cancers of breast, colorectum, uterus, stomach, ovary and lung in females. A large number of the cancers responsible for mortality are related to tobacco use in males and to diet, hormones or other life habits in females, although lung cancer is already emerging as a major cause of death in females.

MORTALITY FROM CANCER IN ANDALUSIA, 1999
Crude rates per 100,000 inhabitants by site and gender.

SITE	FEMALES	MALES
Lip and oral cavity	1.2	8.7
Oesophagus	0.9	6.4
Stomach	7.6	14.0
Colorectum	18.5	24.2
Pancreas	5.9	7.3
Gallbladder	2.7	0.7
Larynx	0.3	9.7
Lung	6.2	73.0
Breast	24.1	0.0
Uterus	8.1	0.0
Ovary	6.4	0.0
Prostate	0.0	20.4
Bladder	3.0	15.8
Leukaemia	5.1	7.2

Source: IEA. Mortality Registry, Andalusia Regional Government. Table by report authors

Analysis of temporal trends in mortality from Cancer in Andalusia since 1975 shows an **increase in standardized rates in both genders; these rates have remained stable over the past decade in males, with a very recent decrease recorded in females**.

MORTALITY FROM TUMOURS (ICD-9: 140 TO 239, ICD-10: C00-D48). ANDALUSIA 1975-1999

	CASES		%		CRUDE RATE		STANDARDIZED RATE		YPLL	
	FEMALES	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES	MALES
1975	3,577	4,776	14.9	18.3	114.3	159.4	125.7	227.3	1170.5	1602.3
1980	4,009	5,485	16.8	21.5	123.3	174.2	126.6	234.8	1206.7	1676.5
1985	4,171	6,829	16.9	24.8	121.5	204.3	117.6	259.6	1016.8	1828.4
1988	4,523	7,262	17.7	25.8	129.3	213.5	121.4	260.2	1078.1	1826.3
1989	4,536	7,491	17.8	26.1	123.2	219.6	118.3	262.0	976.5	1844.5
1990	4,658	7,692	18	26.1	132.4	225.1	120.8	265.5	1097.6	1828.1
1991	4,738	7,814	18	26.2	134.0	227.6	120.1	263.7	1050.7	1823.0
1992	4,742	8,014	18.6	27.4	133.3	231.8	118.0	265.2	1046.1	1797.5
1993	5,052	8,259	18.8	27.5	141.3	237.6	122.3	267.8	1060.7	1843.8
1994	4,897	8,450	18.8	28.9	136.3	241.9	118.0	269.3	1063.9	1822.1
1995	5,147	8,725	19.1	28.3	142.4	248.5	120.1	271.1	1043.1	1809.0
1996	5,175	8,664	18.8	27.8	142.5	245.5	118.4	264.7	1008.4	1730.8
1997	5,280	8,910	19.2	29.1	144.6	251.2	119.6	267.8	1087.6	1762.2
1998	5,190	9,202	18.0	28.4	141.3	258.1	113.3	269.4	956.9	1709.0
1999*	5,227	9,223	18.1	28.5	141.7	258.3	112.6	268.8	932.8	1675.3

Crude Rates x 100,000 inhabitants.

%: Proportion of total deaths

Standardized rate x 100,000 inhabitants. Direct standardization.

European population

YPLL: Years of potential life lost. Direct standardization. European population

* 1999: Provisional data. Classified according to ICD-10

Among the most frequent cancers in males, there was an increase in mortality rates for lung and colorectal cancers that tended to stabilize in the past five years. In females, an initial increase in deaths from breast and colorectal cancers was followed by a decrease in the past five years.

[1] This includes health centres, local and ancillary outpatient clinics

II.1.3. ESTIMATES OF CANCER INCIDENCE IN ANDALUSIA

The incidence of Cancer in Andalusia was estimated from data collected by four cancer registries of Spanish populations in the Mediterranean area, Granada, Mallorca, Murcia and Tarragona, corresponding to the period from 1988 to 1992 (the last available period) and from data on mortality from Cancer in Andalusia for the same period. Projections of the Cancer incidence in 2002 were based on incidence trends observed in Granada province from 1985 to 1997. The information is presented as number of cases and crude rates, since the purpose of collecting these data is health planning.

The estimated number of new cases in Andalusia in 2002 was 28,000, corresponding to a crude rate of 382 per 100,000.

Estimates of Cancer incidence in Andalusia, 2002
Estimated number of new cases and crude rates per 100,000 inhabitants
Most frequent cancers in males and females

Site	Females		Males	
	Nº cases	Crude rate	Nº cases	Crude Rate
Total Cancer (except non-melanoma skin)	11,000	295	17,000	472
Stomach	400	11	700	19
Large intestine	1,600	43	2,100	58
Lung	400	11	3,400	94
Breast	2,500	67	–	–
Prostate	–	–	2,400	67

II.1.4. ESTIMATES OF CANCER PREVALENCE IN ANDALUSIA

Cancer prevalence provides an estimate of the number of patients with Cancer alive at a given time point in a defined population, regardless of when they were diagnosed. However, the resources required to treat new cases are very different from those needed to care for long-term survivors, who are largely disease-free. For this reason, the total or complete prevalence is not of great utility for planning purposes.

The concept of partial prevalence, which limits the number of patients to those diagnosed during a fixed time in the past, is a more useful measure of cancer burden. Prevalence of cancers based on cases diagnosed in the previous 1, 3 and 5 years are relevant to the different stages of cancer therapy, i.e., initial treatment (1 yr), clinical follow-up (3 yrs) and theoretical cure (5 yrs).

We present the prevalence in Andalusia of cases at 1, 3 and 5 years. Prevalence at 1 year expresses the number of patients under treatment in mid-2002. The calculation was based on estimates of the incidence of Cancer in Andalusia and on European estimates of survival from the European population-based cancer registry project EUROCARE-2.

Estimates of the incidence and prevalence of Cancer in Andalusia, 2002
Estimated number of incident (Incid.) and prevalent (Preval.) cases at 1, 3 and 5 years

Site	Females				Males			
	Incid. cases	Preval. cases 1 year	Preval. cases 3 years	Preval. cases 5 years	Incid. cases	Preval. cases 1 year	Preval. cases 3 years	Preval. cases 5 years
Total Cancer (except skin)	11,000	9,000	20,000	30,000	17,000	12,000	26,000	36,000

II.1.5. HOSPITAL MORBIDITY IN ANDALUSIA

According to the **Basic Minimum Data Set for Andalusia (BMDSA), 31,288 of patients with main diagnosis of Malignant Tumour were discharged from hospital in 2000,** 5.4% of all discharges (3.21 % in males and 2.18% in females). The mean length of stay was 12.87 days (13.43 in males and 12.05 in females), representing 9.12% of the total days of hospital stay in that year.

The main diagnoses were:

1.- Malignant neoplasm of bronchi and lung
2.- Agranulocytosis
3.- Malignant neoplasm of female breast
4.- Secondary malignant neoplasm of brain.

II.1.6. CANCER SURVIVAL IN EUROPE, SPAIN AND ANDALUSIA

Survival is usually expressed as observed survival, including all deaths regardless of their cause, which accurately reflects the total mortality in the group of cases under study but does not report the mortality solely attributable to Cancer. For this reason, relative survival data are also given. These correct observed survival rates by considering the risk the study population has of dying for reasons other than cancer, based on life tables for the general population.

Cancer survival figures in Spain, based on data from several Spanish population-based registries, are similar to the European mean for most tumours.

Taking EUROCARE data as the reference, the observed 5-year survival for all cancers in males diagnosed during 1985-89 was 28% and the relative 5-year survival was 35%. The figures were superior for females, with 43% observed and 50% relative 5-year survival rates. Some Cancers, e.g., those of testicle or lip, showed a relative 5-year survival of around 90%, whereas others, e.g., liver

and pancreas, showed a survival of around 5%. The two most frequent Cancers, i.e., lung in males and breast in females, showed very distinct relative 5-year survival rates of 10% in lung cancer and 72% in breast cancer.

The following Table shows available survival data from the Granada Cancer Population Registry by site and gender.

Observed (Obs.) and relative (Rel.) 5-year survival rates (%) of incident cases from 1991-94 in Granada province, by gender

Site	Females	Males		
	Obs. survival	Rel. Survival	Obs. Survival	Rel. survival
Oral cavity	**63**	**68**	**27**	**32**
Stomach	**17**	**22**	**18**	**21**
Colon	**44**	**53**	**41**	**50**
Rectum	**43**	**53**	**36**	**46**
Larynx	—	—	**55**	**64**
Lung	**8**	**9**	**8**	**10**
Breast	**68**	**74**	—	—
Cervix	**48**	**52**	—	—
Endometrium	**67**	**75**	—	—

Source: Granada Cancer Registry. Andalusian School of Public Health

II.1.7. MAIN EPIDEMIOLOGICAL DATA

• ***Mortality:***

- In males, 1996: mortality from tumours in Andalusia and Spain: 264.71 and 266 respectively (standardized rate per 100,000 inhabitants), similar to European Union mean (268 per 100,000),

- In females, 1996: mortality from tumours in Andalusia and Spain: 118.37 and 119.70, respectively, the lowest in the European Union (EU mean of 149 per 100,000)

- 1999, mortality from tumours in Andalusia:
  Cancer was second cause of death.
  There were 14,450 deaths from Tumours (5,227 in females and 9,223 in males).
  Crude mortality rate was 205.5 per 100,000 inhabitants.
  Cancer represents 28% of morality in males and 18% in females.
  30% of years of potential life lost in males and 42% in females were due to tumours.

- ***Hospital morbidity 2000:***
  According to the BMDSA, the main diagnosis was Malignant Tumour in 5.4% of hospital discharges and 9.1% of total days of hospital stay.

- ***Incidence:***
  The estimate of the incidence in Andalusia was based on data from four Spanish population-based cancer registries and from Andalusian mortality.
  The estimated number of new cases in 2002 was 28,000

- ***Prevalence***:
  Based on incident cases in 2002 and survival data from European cancer registries, the estimated prevalence was:
  21,000 cases at one year, 46,000 at 3 years and 66,000 at 5 years.

- ***Survival***
  The cancer survival rates shown by the Granada Cancer Registry is similar to those observed in European population-based cancer registries, with a relative 5-year survival of 35% in males and 50% in females.

III. LINES OF ACTION

III.1. CANCER AND COMMUNICATION WITH AND INFORMATION TO CITIZENS, CENTRAL PILLAR OF THE ANDALUSIAN PUBLIC HEALTH SYSTEM

Citizens are the centre and reason for existence of the Health System. Satisfaction of their needs and expectations is the prime objective of this Plan, and transparency, information and participation are decisive for its achievement.

Although technical quality is the most important element for achieving user satisfaction, the level of information, friendliness, empathy and short waiting times are decisive for citizens to feel satisfied with the service they receive.

It is necessary to involve citizens and to consider them an active part of the organisation, with the possibility of participating in decision-taking that affects them.

Information aimed at citizens must be sustained by a communication plan that aims to transmit a change in the perception of the disease by the general population and in the living-conditions and care of the patients.

In the mind of the general population, cancer, in all its forms, is associated with suffering and death. Regardless of the severity of the diagnosis, anxiety and fear mark the symbolic representation of this disease. Reviews in the medical literature abound with references to this situation. Even healthy individuals show anxiety about possible disease at early diagnostic stages.

If cancer has a social construction, who participates in it? Evidence suggests that medical, journalistic and political/administrative organisations are mainly, although not exclusively, involved. Undoubtedly, the legitimacy of the medical discourse on cancer gives it the greatest influence.

Several agents are involved in communication on cancer in Andalusia: on one side are the medical, health, political and media groups and organisations, and on the other are the patients and their families, whose representations of cancer will develop in parallel to the reconstruction or modification of the medical, political and journalistic discourse on the disease. To the degree that legitimate agents and their organisations modify the traditional “cancer object”, this concept is also very likely to be changed in the minds of the general population in all its diversity.

Lines of Action:

From 2002 to 2006

- *Medical groups and organisations should develop a possibilist discourse of demystification, advocating the capacity and value of early diagnosis, the preventability of many types of cancer and the effectiveness of treatment and curability of many others*. At the diagnosis, fear can be attenuated by the caring attitude of the professionals, reinforced by giving a leading role to the patient and his/her self-care. Each group of patients is different, but the way they perceive the relationship can be improved by the manner in which the information is communicated, i.e.,

warmly, avoiding excessively technical language and using criteria derived from outcome data for the proposed treatment, so that the patient can know what to expect from it. This process will be reinforced by a guarantee of continuous support from the interlocutor and his/her organisation and by treatment to relieve the pain.

- *Health and political organisations should construct a discourse that advocates prevention policies for certain cancers.* In policies to prevent this disease, alliances must be forged with other sectors, e.g., the chemical, tobacco and food industries. For its part, the health system must improve its infrastructure in terms of accessibility, guarantees, personalized care and resources, as gathered by reports on expectations in some care processes.

- *Communications media and specialist journals must participate in and transfer the new processes and dynamics affecting this disease,* meeting their responsibilities in overcoming out-dated attitudes to Cancer (the discourse of the conventional media on cancer largely derives from reports of scientific activity in journals and at scientific meetings).

III.2. PRIMARY PREVENTION

The objective of primary Cancer prevention[1] is to reduce its incidence in the population susceptible to developing the disease by reducing the prevalence of its risk factors.

A large number of risk factors for developing different types of Cancer are known. Cancer is therefore an avoidable disease, as demonstrated by variations in the incidence of many types of Cancer after modifications in their risk factors. However, a reduction in the effects of these risk factors requires marked changes in individual conduct, regulations and social values and behaviours, alongside further research efforts[2]

Although some risk factors cannot be modified, it is estimated that 50% of the mortality from Cancer could be avoided if present knowledge of the causes of Cancer were acted on[3]. For this reason, action is necessary both directly by the healthcare sector and by other sectors, mainly educational, agricultural, trades union and environmental sectors. *This requires collaboration among different public administrations, productive, commercial, employment sectors and citizens' movements, under the clear leadership of the healthcare sector*.

III.2.1. KNOWN RISK FACTORS

Exposure to tobacco smoke is the most important single risk factor in the development of Cancer, and there is no level of exposure below which the risk disappears.

Adult diet and obesity play as important a role as tobacco in Cancer mortality. These two factors (diet/obesity and tobacco) cause 50-65% of all deaths from Cancer.

Although the main social concern about Cancer focuses on environmental and occupational contamination, these factors are third in importance, responsible for a maximum of 12% of deaths from cancer.

Infectious agents, family history and reproductive factors are the next most important risk factors.

In the Table below, alcohol appears as a risk factor associated with a low percentage of deaths; its importance in our setting may be greater because of the higher consumption of alcohol and its interaction with tobacco.

A higher prevalence of risk factors for Cancer has been observed among least favoured social sectors with a lower educational level. Therefore, a strategy of differentiated risk in these sectors must be established in the development of prevention strategies. Thus, it has been proposed that poverty is a carcinogen (s39).

Percentage of deaths from Cancer attributable to known risk factors.

	Doll & Peto[4]	Miller[5]	Harvard Report[2]
Tobacco	30	29	30
Adult diet/obesity	35	20	30
Sedentarism			5
Occupational	4	9	5
Family history		8	5
Infections	10		5
Perinatal factors and growth			5
Reproductive factors	7	7	3
Alcohol	3	6	3
Socioeconomic level			3
Environmental contamination	2		2
Ionizing/ultraviolet radiation			2
Medicaments and medical procedures	1	2	1
Salt/additives and food contaminants			1
Geophysical factors	3	1	
Industrial and consumer products	<1		

III.2.2. MAIN MODIFIABLE RISK FACTORS: SPECIFIC LINES OF ACTION

TOBACCO

Tobacco is estimated to cause a third of all cancers, mainly lung cancer, a relatively uncommon Cancer before the spread of tobacco use during the 20th century. More than 90% of cases are considered to be due to tobacco use.

Prospective studies have shown a higher risk of colon cancer (the second most frequent in terms of mortality) in individuals who have been smoking for more than 30 yrs, indicating that 25% of cases could be attributed to cigarette smoking[6].

Cancers uncontrovertibly related to tobacco and the relative risk[7].

Cancer	Ex-smokers		Smokers	
	Males	Females	Males	Females
Lip, mouth, larynx	1.76	1.76	4.55	4.55
Oesophagus	1.79	1.79	4.01	4.01
Pancreas	1.15	1.15	1.86	1.86
Larynx	NA	NA	10.5	17.8
Trachea, bronchi and lung	6.75	5.07	13.0	11.4
Bladder	NA	NA	2.89	2.60
Kidney	NA	NA	3.00	1.40

Source: Single, CPS-II and USDHHS

In Andalusia, around 10,000 annual deaths are estimated to be attributable to tobacco and 50% of current smokers will die from tobacco-related disease.

In our Community, 34.4% of the population over 16 years old are smokers (42% of males and 26% of females). In only two years, there has been a doubling of the percentage of females who smoke, while the percentage of males has remained stable or has reduced. In the 16-24 year age group, as in the 11-14 year age group, there are already more female than male smokers.

The transition from the 6th year of primary school (20% of children have already tried tobacco) and the second year of secondary school (50.3%) is a key period in the relationship between children and tobacco. Between the ages of 12 and 13 years, the number of children who admit smoking a whole cigarette doubles. These data are especially important because the start of consumption at an early age determines a persistence of the habit in adulthood.

Actions:

Strategies to prevent tobacco use should focus on the female population, who, alongside young people in general, are the main target group for tobacco company publicity campaigns.

Action designed to reduce cigarette consumption is contemplated in the planned Drug Dependence Prevention Law.

The activities to be developed require collaboration of the Regional Health Secretary with: the Education Department, Drug Commission, Government Department (Directorate General of Consumer Affairs), Employment and Technology Development Department, Social Affairs Department, Directorate-General of Youth), Trades Union and Business Organisations, Scientific Societies, Professional Organisations, and the Andalusian Federation of Municipalities and Provinces.

2002:

- *Guarantee that current legislation is enforced, with special reference to*:
  - Prohibition of sale in health and educational establishments (in progress).
  - Norms on cigarette vending machines (2002).
  - Sale of cigarettes in kiosks to minors and as loose cigarettes (2003).
  - Prohibition of smoking in health, educational and public administration establishments (in progress).
  - Prohibition of smoking in the workplace in situations of special risk (in progress).

  In order to oversee the implementation of these norms (in 2002), annual programs will be organised for:
  - Health and Education Centre Directors.
  - Health Service Inspectors.
  - Health Department Inspectors
  - Consumer Affairs Inspectors
  - Education Inspectors
  - Work Inspectors.
  - Autonomous Community Police.

  The activities are of three types:

  1. Signposting of non-smoking areas (in progress).

  2. Development of a joint inspection plan for enforcement of these norms by the Departments involved (2002).

  3. Implementation of annual inspection programme (2002-2003).

- *Institutional information campaigns on the advantages of not smoking in the communications media and other media and by personalised population information services (telephone and Internet)*.

  Priority given to males aged 25-44 years and young females.

- *Restriction of smoking in companies*:
  - Publicity material promoting a healthy work environment.
  - Implementation of norms.
  - Agreements promoting tobacco-free companies with trades unions and management.

- *Leadership of the Regional Health Department in creating a social network to support anti-tobacco action (in progress)*.

  Priority given to: adolescents, females and socially deprived areas (Social Affairs).

2002-2003:

- *Prevention of tobacco use by children and adolescents*:

- Institutional campaigns in communications media and at meeting-places for young people and adolescents and centres of education (2002).
- Actions aimed at avoiding tobacco use by teaching professionals (2002).
- Generalised basic training of teachers in tobacco-related issues (2002-2003).
- Reinforcement of the joint "*Forma Joven* (Youth Way)" programme with the collaboration of Health and Education Departments, Drugs Commission and Directorate General for Youth (2002).
- Eight hours of anti-tobacco educational activity in the first year of secondary school (in progress).

- *Action at health centres*:
  - Action aimed at avoiding the use of tobacco by healthcare professionals (in progress).
  - Training of Primary Care professionals in "Advice to smokers in the consulting room "(2002).
  - Inclusion at all Health Centres of "Advice to smokers in the consulting room" (in progress).
  - Availability of at least one Tobacco Dependency Unit in each Health Area (2002-2003).
  - Guaranteed access in relation to evaluated technologies, e.g., cigarette use cessation therapies (2002-2003).
  - Distribution of information at Chemist shops (2002).
  - Evaluation of currently available material for healthcare professionals (2002).

DIET, OBESITY AND PHYSICAL EXERCISE

Diet

It is estimated that a third of deaths from Cancer are related to diet. An increase in the consumption of fruit and vegetables is the second most effective strategy to reduce Cancer after a decrease in tobacco use. A healthy diet to prevent Cancer is considered to have a high content fruit and vegetable content and a low fat, salt and sugar content.

Cancer	Diet
Breast	Risk may be increased by excessive caloric intake in childhood and adolescence. No apparent association with fat intake in middle age. Protective effect of high vegetable consumption. Two alcoholic drinks per day probably increase the risk by 25%. Some studies indicate a protective effect of olive oil.(S7)
Colorectal	Risk is doubled by high meat intake. Role of fibre is controversial. Certain protection can be given by folic acid as supplement or component of green vegetables. High alcohol consumption is a risk factor.
Lung	Green and yellow vegetables are protective for smokers but do not neutralise the negative effect of tobacco.
Prostate	Red meat is a possible risk factor
Oesophagus	Protective effect of fruit and vegetables. Multiplying effect of alcohol and tobacco

Source: Harvard Report on Cancer Prevention

[2] Translator's note: In Spain, this stage of schooling is for entry to higher education.

The following results were published by the Prospective European Study of Cancer and Nutrition:

1. Fruit and vegetables: Protective effect in cancers of colon, rectum and upper airway and digestive tract. A daily intake of 500 g or more of fruit and pulses reduces the risk of upper airway/digestive cancers by 50%. No clear effect in cancers of stomach or lung.

2. Alcohol and tobacco: Besides the evident effect of tobacco in lung cancer, the study confirms the strong effect of alcohol and tobacco consumption on the upper airway/digestive tract. The risk of these Cancers is multiplied eight-fold by the consumption of more than one pack of cigarettes per day and nine-fold by the intake of more than 60 g of ethanol per day (approximately 75 cl of wine). The combined action of these two factors multiplies the risk 50-fold.

3. Products of animal origin: Increase in risk of colon cancer is associated with intake of cold meat products and a decrease in risk is associated with an increased intake of fish. No association has been found between the consumption of red meat and stomach cancer, although more precise studies on the different forms of preparation of these meats are required. Poultry is not associated with an increased risk of cancer and the association between total meat intake and cancers of stomach and upper airway/digestive tract is not statistically significant.

4. Stress is placed on the multifactorial relationship of food with cancer and the importance of physical activity and the prevention of obesity.

The Andalusian Nutritional Survey reported the following findings:

- Mean fibre intake (17.5 g) below the nutritional objectives proposed for the Spanish population (25 g).
- Predominance of foods of animal origin, especially meats and dairy products.
- Reduced consumption of foods of vegetable origin.
- High intake of total fats. Regarding their quality, monosaturated fats are within recommended values thanks to olive oil, saturated acid intake is above Spanish nutritional objectives and polyunsaturated fatty acid intake meets these objectives.

Obesity

The relationship between obesity and Cancer is complex and the mechanisms are not fully understood. Follow-up studies have shown that a weight 40% above the mean increases the risk of Cancer by 33% in males and 55% in females[8]. Overweight males have a higher incidence of colorectal and prostate cancers; males who are 35% overweight have a 40% higher likelihood compared with slim men. In females, a weight 35% above normal implies a 55% increase in the risk of cancer of gallbladder, breast (obesity only increases Cancer risk in post-menopausal women), cervix, endometrium, uterus and ovary.

According to the Andalusian Nutritional Survey, 21% of the 25-60 year old population are obese, measured as excess Body Mass Index of > 29%, and obesity is more frequent in females, thanks to a higher prevalence (38%) in the 50-60 year age group.

Exercise

Alter lung cancer, the most prevalent cancers are those of colon, rectum, breast and prostate, which are associated with low levels of physical activity.

Physical activity is protective for colon cancer (three-quarters of colorectal cancers) but not for cancer of rectum. Although the effect of physical exercise in reducing colon cancer is clear, the magnitude of the benefit has not been quantified. Even light activity such as a brief walk for 3 hours per week can substantially reduce the risk, while running for 5 hours per week can reduce the risk by more than half.

The relationship between breast cancer and physical activity is unclear. It is influenced by estrogens, which are modified by physical activity. The information is not conclusive.

Data for prostate cancer are not conclusive but high exercise activity has shown some protection, as in breast cancer.

Actions:

Joint actions will be established with the Agricultural and Education Departments, agrofood, fishing and hotel/catering industries, Federation of Municipalities and Provinces, Department of Sports and Tourism and Scientific Societies.

2002:

- *Promotion of healthy life styles*:
  Institutional campaigns:
  - Promotion of Mediterranean diet: fruit, vegetables, fish, pulses and olive oil.
  - Promotion of healthy menus in restaurants/hotels and in the home.
  - Promotion of regular physical exercise.

2002-2003:

- *Actions at educational centres:*
  - Introduction into the curriculum of the positive effects of consuming fruit and vegetables.
  - Promotion of sporting activities.
  - Educational materials promoting fruit and vegetables.
  - Use of healthy menus.

2002-2004:

- *Improve offer of physical exercise activities for the adult population*.

- *Action at health centres*:
  - Nutritional advice in primary health care.
  - Preparation of materials.
  - Training of professionals.
  - Promotion of physical exercise.
  - Educational material promoting fruit and vegetables.

INFECTIONS

The relationship between certain infections and some cancers is clearly established. It is estimated that 15% of cancers in the world are currently attributable to infectious agents, largely viruses (11%) (Parkin et al., 1999). In other words, the elimination of the infectious agents could prevent 15% of cancer cases. This estimate varies according to cancer type, from 5% for leukaemias/lymphomas and HTLV-1 to 90% for cervical cancer and HPV.

	Cancer	%
HTLV-1	Leukaemia/lymphoma	5
EBV	Non-Hodgkin's lymphoma	10-15
EBV	Hodgkin's Disease.	35-50
EBV	Nasopharyngeal carcinoma	40-70
HBV	Hepatocellular carcinoma	40-60
HCV	Hepatocellular carcinoma	20-30
HPV	Cervical cancer	90
H. *pylori*	Gastric carcinoma	?
HIV	Kaposi's sarcoma	?

Fuente: Harvard Report on Cancer Prevention

Actions:

2002:

- *Control of diseases transmitted by blood and blood derivatives*.
- Hepatitis B vaccination of newborns of mothers with positive hepatitis B surface antigen.
- *Prevention of Sexually Transmitted Diseases*.

ALCOHOL CONSUMPTION

Alcohol is a known carcinogen. Its association with tobacco increases cancers of the upper airway/digestive tract, and the risk of these cancers is approximately double in drinkers versus non-drinkers. Alcohol increases the risk of hepatocellular carcinoma by 50% and is also associated with breast and large intestine cancers.

Fraction of mortality attributable to alcohol in individuals over 34 years old[9].

Cancer	Fraction attributed
Lip, oral <cavity and pharynx	0.50
Oesophagus	0.75
Stomach	0.20
Liver and intrahepatic ducts	0.15
Larynx	0.50

Source: Shultz JM, Rice DP, Parker DI

Based on calculations made for Spain, it is estimated that 3,735 annual deaths (6%) in Andalusia are due to alcohol consumption, of which 971 (26%) are from Cancer.

Actions:

As in the case of tobacco, education is necessary but not enough. Changes in the physical, social, economic and legal settings of alcohol consumption are also required, which can be achieved by institutional and community changes and by public policy.

2002:

Education in schools.

2002-2006:

Restriction of alcohol publicity.
Sponsorship limitations.
Communications media.
Use of increased taxes for the prevention and treatment of Cancer.
Restriction of availability of alcohol.
Responsible drinks services.
Community-based prevention campaigns.

OCCUPATIONAL EXPOSURE

It is considered that occupational exposure causes less than 5% of the mortality from Cancer in males (and in no case more than 15%) and a maximum of 1% of this mortality in females. Doll & Peto estimated that 15% of lung cancer cases and 10% of skin and bladder cancers have occupational causes.

Work associated with higher exposure is associated with a lower educational level and consequently with a higher risk from other factors, hence activities should be directed at both types of risk.

Prevention in this context largely involves regulatory measures, which have greater impact compared with the modification of individual behaviours.

Actions:

Activity in collaboration with trades union and business organisations, healthcare professional organisations, insurance companies and the Department of Technological Development.

2002-2006:

- *Promotion of healthy habits at the workplace in collaboration with management and workers*.
- *Guaranteed implementation of norms related to elimination or substitution of risk or to maximum exposure levels for known carcinogens*.
- *Monitoring of exposure levels of workers.*
- *Programme to monitor health of workers (sentinel events in occupational events implying the incorporation of occupation in the BMDSA).*
- *Training of healthcare professionals in the detection of occupational diseases*.

ULTRAVIOLET RADIATIONS

The sun is the main source of exposure to ultraviolet rays, with a clear relationship between exposure to the sun and lip and skin cancers.

Actions:

2002:

The actions to be taken are included in the *"Health and Summer" programme of the Regional Health Department* with the aim of avoiding exposure, with special attention to high-risk groups. The following recommendations are made:

1. Avoid direct exposure to the sun from 11 am to 5 pm.
2. Protect self with clothes.
3. Use a hat.
4. Use sunglasses.
5. Use protective creams.

III.2.3. LINES OF JOINT ACTION

2002:

- *Promotion of Mediterranean diet*.

- *Prevention of sexually transmitted diseases (in progress).*
- *Promotion of positive activities*:
  Physical activity
  Support for consumption of certain foods
- *Promoting the European "Ten Commandments" for primary cancer prevention*:

1. Do not smoke. If you are a smoker, stop smoking as soon as possible and do not smoke in the presence of others. If you do not smoke, do not try tobacco.

2. If you drink alcohol, whether beer, wine or spirits, moderate your consumption.

3. Increase your daily intake of fresh fruit and vegetables. Eat cereals with high fibre content frequently.

4. Avoid excess weight, do more physical exercise and limit your consumption of fatty foods.

5. Avoid prolonged exposure to the sun and sunburn, especially during childhood.

6. Strictly comply with norms established to avoid any type of exposure to substances considered carcinogenic. Follow all health and safety instructions related to substances that can cause cancer.

2002-2006:

- *Prevention of cardiovascular diseases*.
- *Development and implementation of a Public Health Monitoring Programme for Cancer in Andalusia*

III.2.4. GENETIC COUNSELLING IN HEREDITARY PREDISPOSITION TO CANCER

Currently available data indicate that the main cause of mortality in our society will be cancer in the 21st century. In general, the risk factors that influence the onset of a neoplasm can be divided between exogenous (occupational exposure, tobacco, alcohol, etc) and endogenous (hereditary genetic disorders) factors. It is considered that the hereditary genetic component is the main risk factor in 10% of all cancers.

Some of the genes whose alteration confers an elevated risk of some cancer types are already known. In some of these, e.g., breast and ovary cancers, nonpolyposis colon cancer, multiple endocrine neoplasm and medullary thyroid cancer, identification of the genetic disorder influences the clinical management of the disease. It can be predicted that, in the near future, alterations in other genes that contribute to family cancer onset will also be of clinical relevance. All of these advances equip us with an important weapon in the fight against cancer, since they are all aimed at clinical applications in the diagnosis of individuals at high risk of developing cancer. The objective is to develop strategies of prevention, follow-up and/or preventive or pre-symptomatic treatment in individuals at risk. An essential element of this approach is Genetic Counselling.

CHARACTERISTICS OF HEREDITARY CANCER

In general, familial cancer is usually characterised by more aggressive features, such as:

- Earlier age of onset.
- Multifocality of lesions or bilateralism in cases of paired organs.
- Appearance of multiple primary tumours in the same individual.

Moreover, there are family histories of the same neoplasm and/or a high incidence of cancer within the same family.

Any of these situations must alert to the possibility of a case of hereditary cancer and the advisability of referring the family to a Genetics Department specialised in hereditary cancer for Genetic Counselling.

DEFINITION OF GENETIC COUNSELLING IN HEREDITARY CANCER

Genetic Counselling is the process by which patients and/or families with hereditary disposition to cancer are informed of the likelihood of the disease being transmitted to future generations, of the risk of having the disease, of the possibility of undergoing a genetic study to confirm or rule out the family predisposition and of undergoing follow-up and/or treatment available for this disease. All action undertaken must be guided by the principles of confidentiality and privacy.

To summarise, the objectives of Genetic Counselling to patients and relatives with genetic susceptibility to cancer are:

1. To determine the probability of presenting with the neoplasm(s) in the family.

2. To assess the prognosis, early detection strategies and most appropriate therapeutic approach.

GENETIC DIAGNOSIS IN HEREDITARY CANCER

Currently, a fundamental element of Genetic Counselling in hereditary cancer syndromes is the availability of a genetic diagnosis based on molecular study of the gene or genes that confer susceptibility to the neoplasm under study and on the clinical applicability of this diagnosis.

A case of hereditary cancer corresponds to one of three possible situations:

1. The gene responsible for the disorder is known. In this case, genetic diagnosis of the different members of the family is useful to:

   a) Identify asymptomatic carriers and establish appropriate clinical follow-up and therapeutic plans.

   b) Rule out the need for follow-up or treatment in identified non-carriers.

2. The gene is not known but its chromosomal locus is. In this case, a linkage analysis can be performed if there enough affected and non-affected family members, leading to association of the disease with a specific haplotype. Carriers of this haplotype can be considered at risk and programmed for regular clinical follow-ups.

3. Nothing is known about the genetic defect responsible. In this case, thorough and regular clinical examinations are mandatory for all family members considered at risk.

CLINICAL APPLICABILITY OF GENETIC DIAGNOSIS IN HEREDITARY CANCER

The American Society of Clinical Oncology *(ASCO)* recommends that genetic diagnosis is only offered in syndromes of hereditary predisposition to cancer when:

1. The individual has been diagnosed with a cancer at an earlier than expected age and/or there is a significant accumulation of cancers in his/her family.

2. Results of the genetic test can be reliably interpreted and relevant to the clinical management of the patient or family members.

OBJECTIVES AND ORGANIZATION OF GENETIC COUNSELLING IN HEREDOFAMILIAL CANCER:

The objectives of a Genetic Counselling Programme in syndromes of hereditary predisposition to cancer include the following:

1. Diagnosis of patients and family members who meet criteria for inclusion in one of the syndromes of hereditary predisposition to cancer.

2. Detection of possible mutations in susceptibility genes in patients who meet criteria for risk of familial cancer.

3. Creation of a registry of patients carrying mutations in susceptibility genes to support the definition of epidemiological, clinical and pathological characteristics of familial cancers.

4. Contribution to developing protocols for early detection, follow-up and preventive and/or pre-symptomatic treatment.

The organisation of Genetic Counselling in the care of syndromes of hereditary predisposition to cancer requires a multi-disciplinary approach, including:

1. Clinical Genetics Unit

This is responsible for the care of individuals and families referred for suspicion of familial cancer and includes: indicial assessment of the risk of developing certain tumours, design of an individualised screening program according to the family predisposition presented by each patient, extraction of DNA to determine mutations of the gene under study, and planning of measures and progressive follow-ups.

2. Molecular Genetics Laboratory

Its most important functions include:

a) Determination of genetic disorders in heredofamilial syndromes where the basic disorder is known, serving as an essential tool for decision-taking with regard to carriers.

Creation of a DNA bank to store genetic material extracted from patients at risk, with their previous consent, in order to perform the appropriate genetic determinations, either at the time or in the future, according to advances made in this field or to the research lines under development.

Tumour bank for storing tumour tissue from patients in order to identify the alteration produced in the tumour cell. Thanks to the application of molecular biology to the diagnosis and treatment of cancer, knowledge of alterations at tumour cell level will enable development of more active, more specific and better tolerated therapies in the near future.

The above structure enables the more immediate application of new advances in our knowledge of cancer and also contributes, alongside other epidemiological data, to the selection of individuals at high risk of cancer for early diagnosis programmes. Finally, it enables efficient use of resources by differentiating patients more likely to suffer recurrence from those who are cured by cancer treatment.

3. Registry of Hereditary Cancer

The setting up and updating of the Hereditary Cancer Registry allows:

a) Knowledge of the true incidence of hereditary cancer in our Autonomous Community.
Monitoring of the efficacy of recommended follow-up and preventive measures.
Promotion of prevention studies.

b) Provision of a point of connection for epidemiological, clinical and basic studies to also serve as a point of reference for the planning of new research lines in this field.

Lines of Action:

2002:

1. *To enhance Genetic Counselling and the study of family associations with cancer in order to act preventively to identify healthy individuals at high risk of developing a given cancer.*

2003:

2. *To structure the Health Organisation of Genetic Counselling.*

2002-2006:

3. *To strengthen research in genetics to improve knowledge of this type of disease.*

2003-2006:

4. *To assure patients under study of the continuity of the follow-up of their predisposition situation.*

III.3. EARLY DIAGNOSIS

A screening strategy is of variable efficacy depending on the tumour type. Its efficacy appears to be demonstrated in breast and cervical cancers[10,11] but is controversial in other types of cancer[12,13].

The Comprehensive Cancer Plan incorporates basic quality norms for the development of early breast and cervical cancer detection programmes. Moreover, it proposes pilot studies for colorectal cancer to assess the acceptance by the public of different screening techniques and their cost-effectiveness.

III.3.1. EARLY BREAST CANCER DETECTION PROGRAMME

A set of activities designed to achieve the following objectives in women aged 50-85 years residing in Andalusia:

- Reduction in mortality from breast cancer
- Detection of tumours in early studies
- Improvement of quality of life by applying less aggressive, breast-conserving treatments

For this purpose a biennial mammography will be carried out in double projection and double reading in specific mammography examination units (in reference hospital).

Specific lines of action of the Programme:

2002:

- *Analysis of extension of Early Breast Cancer Detection Programme* to all women in age groups targeted by scientific evidence, guaranteeing adequate accessibility. The current target age group is 50-65 years, and 70% of this population in Andalusia has access to the programme. Extension will follow achievement of accessibility for 100% of the current target group of around 550,000 women.

- *Promote accessibility to Early Detection Programme* for all women in target age groups, eliminating covert early diagnosis carried out at care centres. All professionals related to breast disease must know the basic differences between early detection programmes and diagnostic mammography. It is proposed:
  - To offer a wide range of times and ensure availability of public transport.
  - To simplify administrative circuits, developing a “one-stop” approach.
  - To offer accessibility to specific detection measures for high-risk populations.

- *Ensure agile circuits for the active return from the hospital of information on the diagnosis and/or therapeutic procedure* of the women referred to the hospital.

- *Guarantee the availability of hospital diagnostic studies* for breast cancer for women in the Programme when required for studies of interval carcinoma *and* false negatives.

2002-2003:

- *Involvement of Primary Care professionals* through their participation in different phases of the process (publicity, recruitment of women, communication of pathology results).

- *Setting up of mechanisms for the coordination and evaluation of the functioning and results of the programme* among the Primary Care District, the Hospital management, directly involved Clinical Departments and Primary Care centres.

- *Administration of satisfaction questionnaires to users* of the Programme on its main features.

- Guarantee high participation by publicising the programme to the population in an i*nstitutional campaign in the communications media*

- Ensure agile circuits that offer *adequate response times in the main stages* of the programme.

III.3.2. EARLY CERVICAL CANCER DETECTION PROGRAMME

Early detection programme based on case detection.

The objective of cytology is not diagnosis of the lesion, which requires biopsy study, but rather to identify pre-malignant or malignant lesions that need the care measures defined in the process.

The effectiveness of screening depends on the quality of the sampling, the preparation of the sample and a correct interpretation. The following should be taken into account to increase the effectiveness of early diagnosis:

- Screen a wide age range.
- Ensure high participation.
- Improve acceptability
- Guarantee quality of sampling and cytology interpretation.
- Continuity of appropriate care in the follow-up of abnormal results.
- Monitoring and evaluation of the quality of the Programme.

2002:

A mixed-interval Schedule is proposed for cytology studies within the Early Detection Programme for women without risk factors for cervical cancer and no partner changes, and for women with risk factors.

- **Women without risk factors for cervical cancer and without partner changes.**

Performance of **two consecutive annual cytologies**; if results are normal, the cytology studies are then performed **every three years** until the age of 65 years and alter two normal studies. The following women are included**:**

- Women from onset of sexual activity or 21 years, whichever is earlier.
- IUD carriers.
- Women receiving hormone replacement therapy.
- **Women with risk factors for cervical cancer.**

An **annual** cytology will be performed in the following cases:

- Early onset of sexual relationships (at less than 20 years old).
- Multiple sexual partners.
- Male partner with multiple sexual partners (high-risk male).
- Viral infection: Human Papillomavirus (HPV) and herpes virus.
- Immunosuppression. HIV.
- Tobacco use.
- History of intraepithelial cervical neoplasm, CIN/SIL Dysplasia.
- Current hormonal contraceptive use
  (2003 EVALUATION)

III.3.3. EARLY COLORECTAL CANCER DETECTION

Among tumours, colorectal cancer has become the second cause of death in both males and females in Andalusia.

Because of the natural history of colorectal cancer (percentage of hereditary cases developed from adenomatous polyps, long evolution,…), its early detection is essential for the patient's survival, explaining the importance of screening to reduce the morbidity and mortality of this disease.

Nevertheless, the low sensitivity of some of the screening tests used and the invasiveness of others underline the need for pilot studies in areas with high morbidity and mortality rates from colorectal cancer to evaluate their acceptability and cost-effectiveness.

Lines of Action:

2002-2004:

Pilot studies will be run in areas of elevated mortality from colorectal cancer in order to evaluate the performance of different screening techniques (detection of occult blood in faeces, colonoscopy in age groups at risk…). Selected areas will have a good positive quantitative and qualitative correlation, i.e., a higher Standardised Mortality rate (indicator of intensity of the mortality) and Years of Potential Life Lost (Indicator of premature death) in both males and females.

III.4. HEALTHCARE FOR CANCER PATIENTS: MANAGEMENT OF CARE PROCESS

In order to improve clinical outcomes and quality of life of the patients, a model of healthcare is proposed based on the structuring by care processes from a care continuity standpoint as an element guaranteeing overall quality. This model requires coordinated multidisciplinary action of the different levels involved and on available resources.

General Lines of Action

2002-2003:

Favour areas of common work in both clinical and functional aspects. This means that the

organisational structure of the care centre must be adapted as far as possible to the characteristics of the health problem (Cancer) and not the other way round. Thus, when we talk of multi-functionality etc., it is in the context of forming an organisation whose members have different training and specialities. This includes both single functional units and more structured models such as Clinical Units.

To agree *clinical guidelines and action protocols for different tumour sites based on quality norms for cancer care processes.*

2002-2006:

Structure the healthcare of cancer patients via comprehensive care processes, allowing us to functionally define this healthcare as *"the set of activities aimed at early diagnosis, diagnostic confirmation, staging and the design of a therapeutic plan with the selection in each case of the appropriate clinical protocol, treatment modality, centres involved, follow-up, prevention and management of complications, access to palliative care in any residential setting and psychological and social support for patients and main caregiver."*

In general, the care process starts with a patient with clinical symptoms/signs or suspicious findings in early or routine diagnostic tests and ends with the natural progression of the disease (cure or death), since prolonged follow-up of the patient, usual in these cases, keeps them within the care process.

The main target of the activities is the patient, although the expectations of other groups must be explicitly considered, in this case mainly the main caregiver, family members, and professionals of different levels, services and categories, e.g., voluntary workers and self-help groups.

- Once the *cancer patient care process* is designed and incorporated at a local level, it is necessary to implement *quality control and continuous improvement mechanisms* that address the following questions:
  - Are the outcomes of the process those that were desired?
  - Were timings and time periods (critical points, response times, delays, etc.) those that were expected?

Specific Lines of Action by Tumour Type

Breast cancer:

Creation of Multi-Disciplinary Breast Disease Units at all centres that treat patients with breast disease and/or are considered a referral centre for the Early Diagnosis Programme. They are Functional Units that include all healthcare professionals related to the diagnosis and treatment of breast cancer, regardless of their care level.

They will fulfil the following functions:

- Establish a clear circuit for patients.
- Apply clinical protocols based on breast disease norms.
- Regular follow-up of cases with joint decision-making.

- Advise professionals in specialities considered to support comprehensive treatment and in others with which lines of cooperation must be established.

Performance of diagnostic studies with delay of less than 10 days. On suspicion of breast cancer, initial protocolised diagnostic studies will be requested from the reference radiodiagnostic unit, receiving the results within 15 days of their performance.

Access to protocolised comprehensive treatment within 15 days of confirmation of the diagnosis.

Availability of appropriate technology with replacement of equipment to allow intervention in a single act, whenever possible, by the Radiologist responsible for breast disease.

Initiation of *lymphedema prevention activities* at 24 h of the intervention.

Initiation of irradiation treatment with a delay of less than four weeks after its indication.

Colorectal cancer:

Creation of a Single Comprehensive Information System to improve workflows and communication and information mechanisms in order to reduce delays between Primary and Specialist care and among specialists in surgery, medical oncology and radiotherapeutic oncology.

Availability of endorectal ultrasonography equipment and trained staff to ensure a correct preoperative staging

Reduction of technical variability among institutions and surgeons in order to guarantee an appropriate surgical technique based on the best available scientific evidence (total excision of mesorectum).

To ensure accurate pathology studies by mutual audit between surgeon and pathologist and *accurate postoperative staging* by identification of all factors that have shown prognostic value in well-designed studies.

Correct application of neoadjuvant and adjuvant therapies according to available scientific evidence, in adequate times and using the most appropriate technique.

Guarantee of adequate follow-up of ostomized patients with technical and psychological support.

Adequate follow-up for at least two years after intervention with serial CEA, performing imaging tests as a function of the CEA, including PET in selected cases.

Active treatment of metastatic disease with selection of candidates for potentially curative surgery of metastases.

Regular assessments of treatment outcomes.

Skin cancer:

Specific, clear and accurate information on the most effective photoprotection measures to

schoolchildren, individuals at risk (light skin) and photo-exposed professionals, understanding that sunlight is the main etiological agent in the onset of skin cancer (basocellular or spinocellular carcinoma or melanoma).

Adequate Prevention and Early Diagnosis in patients presenting with any change in the shape, size, colour or relief of a lunar (nevus); by establishing information campaigns aimed at the population with recommendations to visit the dermatologist, given that skin cancer can be completely cured if diagnosed early.

Setting up of High Performance units in order to establish diagnosis and treatment after the smallest possible number of visits.

The delay between diagnostic suspicion and first visit to the dermatologist will not exceed 15 days.

The pathology report will be delivered within 3-7 days after it is requested.

Guarantee of the regular and protocolised follow-up of patients with diagnosis of skin cancer because of the possibility of late metastases in melanoma and the development of new tumours.

Prostate cancer:

Establishing Initial assessment in Primary Care, including:

- Medical history.
- *Clinical examination, including digital rectal exam for* differential diagnosis of urological diseases and tumour detection.
- *Introduction of the International Prostate Symptom Score (IPSS)* questionnaire at diagnostic and follow-up stages as an objective assessment tool that allows characterisation of symptoms and evaluation of the influence of different therapeutic regimens. The use of a specific score system for symptoms in the initial evaluation of patients who present with prostatism symptoms is worthy of special consideration because, together with other complementary diagnostic techniques (digital rectal exam, prostate-specific antigen, etc.), it significantly improves the diagnosis of different prostatic diseases.
- Request for Prostate-Specific Antigen (PSA): care guidelines for patients with benign prostate hypertrophy/prostate cancer to introduce precise indications for the request of this test, limiting it to the following symptomatic male patients
    - Aged 50 - 70 years.
    - aged under 40 years with family history of prostate cancer
    - Aged less than 40 years and of Negro race.

High performance visits that allow the diagnosis and therapeutic plan to be established in a single medical act or in the least possible number of visits.

A maximum delay of 30 days is established between the referral to an urologist and the visit.

Precise and sequential indications of the appropriate diagnostic tests are established to avoid delays and their over-utilization (ultrasound, follow-up tests, pressure-flow tests, prostatic biopsy, extension studies).

Aspects to be assessed are defined before opting for currently available therapeutic options:

- Staging.
- Patient preferences.
- Age.
- Life expectancy for the next 10 years.
- Prostate-Specific Antigen (PSA)
- Gleason score.
- Presence of urinary tract symptoms or pain.

Programme of *surgery* with maximum delay of 60 days.

Post-surgical follow-up within 30 days of surgery.

Established follow-up for patients undergoing radiological treatment or hormonal block and for those with recurrences.

Laryngeal cancer:

Comply with criteria for referral from Primary Care to Specialised Care according to Basic Quality Norms for Laryngeal Cancer (all patients over 50 years old with a history of dysphonia of more than 15 days and smoker of more than one packet of cigarettes per day).

Enhance Early Diagnosis by an exhaustive examination of patients, largely those who develop chronic laryngitis, by using fibrolaryngoscopy and stroboscopy (since glottic tumours show symptoms earliest, producing dysphonia from the outset and rarely accompanied by regional involvement) and *apply conservative treatment with CO_2 laser in early stages.*

The maximum delay before radiotherapeutic treatment in advanced cases must not exceed five weeks after surgical treatment.

Cervical cancer:

The cytology sampling must be carried out in Primary Care: when the cytology is positive, the *delay in diagnostic confirmation must not exceed 10 days*, including the pathology report alter directed biopsy that must contain the information proposed by the American College of Pathologists Cancer Committee.

The delay in i*nitiation of surgery of the cervix according to the degree of dysplasia must not exceed 2 months*, a time point that marks a clear difference in the risk.

The definitive post-surgical staging must include: the definitive diagnosis, stage (according to the International Federation of Obstetrics and Gynaecology), complementary examinations performed, proposal for complementary treatment when indicated, and frequency of follow-up and subsequent treatments.

All patients treated for intraepithelial lesions of the cervix (IDC I-II-III) must be assessed *every six months* to rule out recurrence and persistence or progression of the disease.

III.5. PALLIATIVE CARE OF THE CANCER PATIENT: PALLIATIVE CARE PROGRAMME

The clinical progression of patients with incurable disease, who remain the majority (only around 40% of cancer cases are controlled), is relatively prolonged and the clinical picture is painful.

Patients in this stage require health and social interventions to alleviate the suffering often undergone by cancer patents with no expectations of control by active cancer treatments.

In our setting, patients reach this stage after a more or less prolonged therapy almost always replete with aggressive measures that failed in their objective of tumour eradication.

It is necessary to address this situation by adopting the most appropriate solutions, in our case by means of an *comprehensive process* (as the most efficient tool for organising a highly defined activity in a well-identified population) based on a ***model of palliative care in the family home.***

Within the framework of the recognised criteria for ***Terminal Disease*** (*presence of progressive, incurable and fatal disease),* **Comprehensive Palliative Care offers a process of care continuity** into which patients and their caregivers are introduced, providing them with physical, psychological, social and spiritual (comprehensive) care until the patient's death, which is followed by completion of a limited, non-pathological grieving phase with the family. ***An comprehensive palliative care*** *programme will ensure a continual consensual approach to the treatment, care and activity settings of patients in accordance with their expectations and those of their family and friends*.

The home-based comprehensive palliative care process must be supported by a coordinated palliative care team with professionals from Primary Care, domiciliary care support units, and Specialist Care.

Primary Care professionals mobilize specific resources of the Coordinated Palliative Care team according to a continuous assessment of the care needs of the patient, in order to guarantee:

- Domiciliary care (programmed visits, emergencies, care by telephone) and outpatient care of the patient.
- Care at the Palliative Care Unit (Hospitalization and/or Day Hospital) and, depending on the progress of the patient, the patient will be referred to the Support Unit (if there are special needs), sent home for domiciliary care, or referred to Hospital Palliative Care Units if prolonged hospital stay is required.

III.6. STRENGTHENING OF THE ANDALUSIA CANCER CARE NETWORK

Adapting the offer of services and departments to the needs of the cancer patient requires a reorganisation and increased provision of the appropriate human and technological resources in order to achieve the optimum organisational balance.

Cooperation among the different care levels involved, among centres and among professionals is essential.

Primary care plays a highly important role in four major elements of cancer care:

- *Primary prevention*

- *Early detection*
- *Domiciliary Care*
- *Psychosocial support*

Specialist care participates in the process in the diagnostic confirmation, treatment and follow-up of the condition of the patient and possible confirmations, and in the advanced or terminal stage (together with Primary Care).

Lines of Action

2002-2004:

- *Guarantee a single medical record for cancer patients and the existence of a unit that is responsible for them.*

- *Guide the activity of the Tumour Commission at each Hospital Centre (in the setting of the Quality Commission) in relation to the incorporation, development, and evaluation of the management of comprehensive cancer care processes at the Centre*.

- *Create Multidisciplinary Units that respond to the most important oncological diseases.*

- *Establish High Performance Visits* to establish the diagnosis and therapeutic plan in a single medical act or in the fewest possible visits.

- *Include in the facilities of Medical Day Hospitals at all District Hospitals both general chemotherapy and non-parenteral cytostatic treatments.*

- *Propose measures to organise surgery in the Oncology setting* in order to define the performance of the different surgical care levels, taking account of predicted outcomes and the specific training of the professionals (in accordance with competency maps).

- *The comprehensive treatment of breast cancer will include reconstructive treatments for all mastectomized women with their informed consent after receiving information about the possibility of breast reconstruction in the same surgical act as the mastectomy or in a second surgical act after completion of their cancer treatment.*

  Treatment will be offered according to established protocol, offering:
  - Breast reconstruction in one or several steps
  - Reconstruction of chest wall, when necessary, in the same surgical act as the mastectomy
  - Reconstruction of nipple-aureole complex
  - Aesthetic treatment of contralateral breast when necessary

  The patient will receive a report on the reconstructive treatment, with special mention made of the surgical technique, type of prosthesis, manufacturer, position and approach.

- *Cryopreservation of semen of patients programmed for a cancer treatment that carries major reproductive risk (of loss of reproductive capacity) to afford them the future possibility of having their own biological children by assisted reproduction techniques*

2002-2006:

- *Establish a basic diagnostic structure in Primary Care*, to allow rapid diagnostic mechanisms based largely on conventional radiology and ultrasound (following established indications in relation to cancer).

- *Technological Adaptations of Radiotherapy Treatment Equipment,* by increasing the number of linear accelerators, renewing cobalt sources in well-functioning equipment and replacing Cobalt Equipment (according to their condition) with Linear Accelerators.

Technological Adaptation Plan by Provinces:

Almeria:
- Acquisition of High-Energy Linear Accelerator with multi-leaf collimators, dynamic wedges and portal imaging (2004).
- Progressive renewal of cobalt sources while the equipment functions well.

Cadiz:
- Creation of a new Radiotherapy Unit with Low-Energy Linear Accelerator with option of electrons, multi-leaf collimators, dynamic wedges and portal imaging (2003).
- Acquisition of High-Energy Linear Accelerator with multi-leaf collimators, dynamic wedges and portal imaging (2004).
- Renewal of cobalt source.

Cordoba:
- Acquisition of High-Energy Linear Accelerator with multi-leaf collimators, dynamic wedges and portal imaging (2004).
- Renewal of cobalt source.

Granada:
- Renewal of cobalt source.
- Acquisition of multi-leaf collimators, dynamic wedges and portal imaging if Linear Accelerators that permit these do not have them.

Huelva:
- Acquisition of High-Energy Linear Accelerator with multi-leaf collimators, dynamic wedges and portal imaging (2003).
- Progressive renewal of cobalt sources while the equipment functions well.

Jaén:
- Acquisition of High-Energy Linear Accelerator with multi-leaf collimators, dynamic wedges and portal imaging (2003).
- Renewal of cobalt source.

Malaga:
- Acquisition of Low-Energy Linear Accelerator with option of electrons, multi-leaf collimators, dynamic wedges and portal imaging (2003).

- Acquisition of High-Energy Linear Accelerator, with multi-leaf collimators, dynamic wedges and portal imaging (2004).
- Renewal of cobalt source.

Seville:
- Replacement of the two oldest Cobalt Units (according to the date of their first use) by two Linear Accelerators: a Low-Energy model with option of electrons, multi-leaf collimators, dynamic wedges and portal imaging; and a High-Energy model with multi-leaf collimators, dynamic wedges and portal imaging at Virgen del Rocío Hospital (2002).
- Renewal of cobalt source.

- *Adaptation and/or updating of Simulators and Dosimetry Systems*
  - In Jaen and in new Units, Virtual Simulators with compatible three-dimensional Planner and complete Physical Dosimetry system.
  - In remaining Provinces, Physical Dosimetry and Clinical (three-dimensional planning) systems will be updated and, when applicable, Virtual Simulators.

- *Complete the offer of services by Brachytherapy Units in Andalusia* in order to offer interstitial (especially breast-conserving treatment, lip and oral cavity), endocavitary (cancers of cervix and endometrium), endobronchial and endoesophageal radiotherapy by the progressive acquisition of high-dose-rate brachytherapy equipment in Seville, Granada and Cordoba (therapy indicated in 90% of patients, who can also be treated in day hospital regimen).

III.7. ACTIONS IN CHILDHOOD CANCER: MAIN ELEMENTS

III.7.1. INTRODUCTION

Cancers during childhood have acquired increasing importance in developed countries over the past few years thanks to an improvement in treatment outcomes and a reduction in the mortality.

There are some major differences between childhood and adult neoplasms:

- In tumour type:
  - Leukaemias, lymphomas and central nervous system tumours are the most frequent.
  - Predominance of embryonic tumours and sarcomas within solid tumours
- In the high sensitivity of childhood tumours to radio- and chemotherapies.
- In the special features of children due to their age and development.

According to data from Spanish population-based cancer registries, the incidence of childhood cancer in Spain is around 14 cases per 100,000 children, similar to rates reported in neighbouring countries, e.g. Italy and France.

Although cancer is relatively uncommon in children, it is the second cause of childhood mortality in developed countries.

Over the past few years, there has been a clear improvement in the diagnosis and treatment of childhood cancer In Spain, not only because of diagnostic and therapeutic advances but also due to the design of therapeutic protocols for each tumour type.

III.7.2. ACTIONS IN CHILDHOOD CANCER

2002-2006:

Development of Care in Paediatrics

1. Develop multi-disciplinary Paediatric Oncology Units (Referral Units) as the ideal site for the diagnosis and treatment of children with cancer. Likewise, it is essential for Paediatric Oncologists to work in collaboration with other Departments, including Paediatric Surgery, Radiotherapy, Medical Oncology, Radiodiagnostics, Pathology and Pharmacy.

2. Enhance collaboration between Paediatric Oncology Units and Primary Care in all aspects related to the prevention and care of children with cancer.

Increased efforts in Specific Preventive Measures

1. Involve the different institutions (healthcare, educational centres, councils, etc.) in the development and publicising of preventive programmes promoting healthy life habits (food, tobacco, physical exercise, etc.)

2. Involve Primary Care paediatricians in the Health Education of parents, children and adolescents.

Improvement in Quality of Life of all children with cancer by offering each child and family a programme that guarantees the cure of the largest possible number of cases and the optimal possible quality of life for all patients.

1. Enhance psychosocial support.

2. Co-ordinate palliative care to favour as far as possible the stay of children in their family home.

Creation of Andalusian Childhood Tumour Registry responsible for gathering, storing, analyzing and interpreting data on the under 15-year-old population with cancer. This allows us to determine the magnitude of the problem, to evaluate the quality of care and to plan the offer of services.

III.8. VOLUNTARY AND SELF-HELP GROUPS IN CANCER TREATMENT

Voluntary Associations and Self-Help Groups carry out increasingly important and widespread work in our society. Their knowledge of the reality experienced by cancer patients enables them to communicate their problems to the Healthcare organisation and contribute to sensitizing society to this disease.

Furthermore, the personal experience brought by self-help groups contributes to improving the quality of life of patients and their family/friends by ending the isolation in which they often find themselves and teaching them how to live with the disease.

Lines of Action:

2002-2003:

- *Develop a communications plan in collaboration with voluntary associations and self-help groups to transmit a change in the perception of this disease and in living conditions of patients*.

2002-2004:

- *Establish joint actions for interventions in the home within the framework of the comprehensive palliative care process, creating synergy mechanisms in the delivery of care.*

2002-2006:

- *Promote collaboration agreements with voluntary associations and self-help groups*.

- *Actively investigate expectations that patients and caregivers have of cancer care processes by developing focus groups on these issues*.

- *Enhance and facilitate integration of voluntary associations and self-help groups within care units*; in the framework of cancer-related care improvement groups.

- *Collaborate with social action organisations in the development of primary care programmes by publicity and action campaigns on modifiable risk factors*
- *Enhance and maintain collaboration with social action organisations in the development of early breast cancer diagnosis programmes*

III.9. INFORMATION SYSTEMS

Information Systems are essential for the setting up and development of the Comprehensive Cancer Plan, since the data they provide allows its planning, management, and evaluation. They also serve as care support and to assist training and research activities.

Control of Cancer requires information about the magnitude of the disease (mortality, incidence, survival, years of potential life lost and life expectancy), and about the situation in primary prevention (changes in risk factors over time), early diagnosis (screening programme indicators) and diagnosis and treatment (utilisation of services, delay times, etc.).

Currently available information sources in the Autonomous Community of Andalusia are:

- Population-based Cancer Registry of Granada.
- Hospital Tumour Registries.
- Mortality Registry
- Risk Factor Prevalence Survey

- Healthcare Services Utilisation Studies
- Specific application of Breast Cancer Early Detection Programme (Spanish initials- BCD)
- Minimum Basic Hospital Discharge Data Set (Spanish initials- CMBDA)

Healthcare information sources on cancer are largely characterised by the presence and spread of **Population-Based Cancer Registries**, whose main aim is to determine the number of new cases of cancer diagnosed in a certain time period among residents of the corresponding geographic area.

Data produced by these registries can be useful in the control of this disease in different ways, including etiological research, primary and secondary prevention, healthcare planning and patient care. They also provide the information required to plan and establish the necessary resources for an appropriate and adequate health care. By documenting cancer incidence trends, the Population-Based Cancer Registry allows the effects of primary prevention to be monitored by conducting cohort studies on the risk of specific cancers through the follow-up of patients with known characteristics (occupational exposure. tobacco use, diet, etc). Likewise, survival studies indirectly contribute to evaluating quality of care and focus attention on the reasons for differences observed between different regions or countries.

Registries can play an important role in the evaluation of cancer screening programmes. In the initial stages, they contribute to their management, offering information on individuals already diagnosed with cancer. Throughout the programme, registries can provide data on interval cancers, on changes in diagnosed stages of cases and on incidence and mortality trends over time. Likewise, cancer registries can be an important resource for research and teaching.

Population-based cancer registries in Southern Europe do not include areas with large populations because they use a mixed method of data collection (hospital discharges and pathology departments on magnetic media, and direct search of hospital records). In Andalusia, the proposed model requires the setting up of independent registries that operate using standardised methods to facilitate data comparison.

Lines of Action

2002-2006:

- *Preparation of an comprehensive "instrument panel" on Cancer in Andalusia* as a fundamental management tool for supporting decision-taking. It should include central elements that allow the continuous monitoring and evaluation of the general objectives proposed in the Comprehensive Cancer Plan of Andalusia.

- *Creation of Childhood Tumour Registry of Andalusia*: This registry will allow us to know the magnitude of cancer among under 15-year olds, to assess the quality of care in this population, and to carry out a more appropriate planning of healthcare services. As well as documenting the incidence (there are around 180 new cases per year), it will also provide knowledge of care circuits for children with Cancer in this Community. It will be possible to count on the considerable experience that the Spanish Society of Paediatric Oncology gained in the creation and maintenance of the Childhood Tumour National Registry (which has low coverage in Andalusia) and on the existence of an active Association of parents of children with Cancer. Above all, however, this Registry can be of major value for evaluating and improving the healthcare of children with Cancer in Andalusia.

Objectives of the creation of the *Childhood Tumour Registry of Andalusia* are:

- To determine the incidence of Cancer in under-15-year-olds in Andalusia.
- To determine the stage at time of diagnosis
- To determine the treatment received
- To determine care circuits of children with Cancer
- To analyse the survival
- To analyse incidence and survival trends
- To constitute an information source for research on childhood cancer

- *Progressive development of Population-Based Cancer Registries*. This will allow: continuous evaluation, resolution of problems encountered, and progressive consolidation of the registries established. An initial stage is proposed, including provinces selected according to epidemiological criteria of morbidity and mortality from cancer and according to sociodemographic criteria for their feasibility.

III.10. DEVELOPMENT OF CANCER RESEARCH

The WHO considers Cancer to be a priority research area and it is included in all national and European research plans. Cancer research consists of the study of neoplastic diseases and the mechanisms of carcinogenesis and the search for methods to improve early (preclinical) detection, follow-up, prevention and therapies.

Scientific research should be aimed at continuous improvements in care by investigation of healthcare outcomes and must always be linked to the adequate training of researchers, the creation of an atmosphere of corporation and collaboration and the existence of an appropriate scientific policy.

In recent years, basic and applied research in Oncology has seen its greatest development in: Genetics, Immunology, induction mechanisms and tumour progression, viruses and cancer, cell death regulation, cell cycle regulation, early cancer detection and diagnosis, chemoprevention, and cancer treatment and screening.

In Andalusia, both the Second Andalusian Health Plan and the third Andalusian Research and Quality Plan made special mention of Cancer in the different phases of its natural history as an important health problem, funding numerous projects and research groups in this research line. Oncology Units of different hospitals have participated in multi-centre clinical studies of a high scientific level, giving rise to national and international publications. This activity should be promoted for its repercussion in terms of the quality of clinical practice.

Nevertheless, it should be acknowledged that research in Andalusia has suffered from a lack of coordination, with disperse projects and objectives and a lack of structured methodology. As a result, criteria have not been standardised, probably due to the multiplicity of funding sources and grant circuits and procedures, each with different research objectives.

However, with regard to this situation, the Health Department of Andalusia recently adopted regulatory mechanisms (linked to previous regulations, e.g., Order of 12 June 2001 and Resolution of 11 July 2001) that promote:

- The amalgamation and evaluation of all funding sources of research projects and research training in health sciences.
- The establishment of a single circuit and procedure for the awarding of grants/subsidies, including the concept of collaborating entity.

- The standardisation of priority criteria for the selection of research projects:
  - Main causes of morbidity and mortality, notably Cancer
  - Public Health and health promotion, including habits, nutrition and use of tobacco and alcohol, etc.
  - Basic research, including investigation related to genetic diseases
  - Neurosciences

The use of Controlled Clinical Trials as a research design is especially important in oncology given the dynamics of the introduction of new treatment strategies. Therefore, application is required of the future Law on the functioning and structures of Ethical and Health Research and Clinical Trials in the Andalusian Public Health System. For this purpose, Health Ethics and Research Committees and Clinical Trial Committees will be set up at both Regional (Andalusian) and local level.

Lines of Action:

2002-2006:

1. *Strengthening of Research Lines related to Cancer in the Andalusian Health Research Programme*
   - Population studies of the cancers with highest mortality rates in our Autonomous Community.
   - Studies of risk factors of the most prevalent cancers.

2. *Support by the Andalusian Plan for Basic and Clinical Research in Oncology (largely preventive and therapeutic aspects)*

3. *Enhancement of Research Lines of the "Europe against Cancer" programme*.

4. *Coordination of Cancer Research Lines (Research Units), establishing links between Laboratory and Clinical Research*.

Amplify funding opportunities: Capture of European funds, coordination of different research groups and increased number of multi-centre studies.

III.11. PROFESSIONAL TRAINING AND DEVELOPMENT

III.11.1. UNDERGRADUATE TEACHING OF MEDICINE

The European Union launched the "Europe against Cancer" programme , published in the Official Journal of the European Community Journal on February 25 1987, with an action plan containing three

main starting points, notably one that addressed the University teaching of oncology, stating that "oncology training is divided among the different components of the degree course, which does not appear to be appropriate". In order to improve this situation for students: "Member States should have a Professor of Oncology at all medical teaching centres to offer an extended programme that includes epidemiology, prevention principles, early detection, treatments and terminal care. The number of class hours for this programme should be adapted to the academic plan in force. Finally, all programmes at Schools of Medicine should include an examination in Oncology".

Actions:

2002-2006:

Dynamize the communication between the Regional Health Department and Universities (Schools of Medicine and Nursing Schools) using established Mixed Commissions and Inter-Organisational Commissions at each hospital in order to advance and achieve the development and optimisation of oncology teaching.

III.11.2. SPECIALIST TRAINING

The aim of current specialist training in oncology is to facilitate acquisition by the resident of knowledge, skills and attitudes to enable them to offer effective care to cancer patients, to carry out prevention, promotion and health education functions, and to take on continued self-training

Actions:

2002-2006:

Strengthen Coordination Structures for Teaching Committees at Andalusian Hospitals in order to standardise programmes for Residents in Medical and Radiotherapeutic Oncology, treating incidents in the same manner, improving the quality and increasing the attraction of this speciality for future residents.
Transfer of information and discussion of proposals with Teaching Commissions and Hospital Tutors, with the Regional Health department, National Commissions of Medical and Radiotherapeutic Oncology Specialities and the Ministry of Health and Consumer Affairs.

III.11.3. PROFESSIONAL TRAINING AND DEVELOPMENT

The Medical Education Committee of the European Union recommends regular continued medical education as a guarantee of professional medical practice.

Continued training is of immense importance in Cancer for all categories of health care professionals so that they acquire the knowledge, skills and attitudes required at the different stages of the natural history of the disease and are kept trained and updated in technological and scientific advances in this field.

The aim is to have technically highly trained professionals able to achieve high citizen satisfaction.

Technical knowledge can be taught and learnt and without it, outcomes may not be optimal. However, technical knowledge alone is not enough to guarantee success or the performance of the professional or the organisation. For this reason, besides technical training plans, a model of professional development needs to be established to produce competent and multi-skilled professionals.

In the proposed approach to the healthcare of patients with Cancer based on a structuring of the care process, the professional will have to acquire the knowledge required for this purpose. One of the basic components of the process is the definition of the necessary competencies of all professionals involved for the performance of the operative and support activities that each care process requires.

Actions:

2002:

Define the map of competencies, knowledge, skills and attitudes that must be developed by all professionals that participate in care of the cancer patient and in the development of the Andalusian Comprehensive Cancer Plan.

2002-2004:

Establish a plan of specific training in Oncology within the framework of management by processes that adapts the current competences of the professional to the needs defined in the map of competencies established for each process.

2002-2006:

Coordination with the different bodies that carry out this task (Professional Colleges of Physicians, Universities, Hospitals, Health Centres, etc.)

III.12. REGULATORY DEVELOPMENT

In 2002:

Preparation of the specific regulations that will regulate the Creation of the Consultative Committee on Cancer in Andalusia, as a consultative body attached to the Health Department for technical guidance on the prevention and control of Cancer.

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